S. MAW, SON & THOMPSON, LONDON
TRADE MARK

MAW'S

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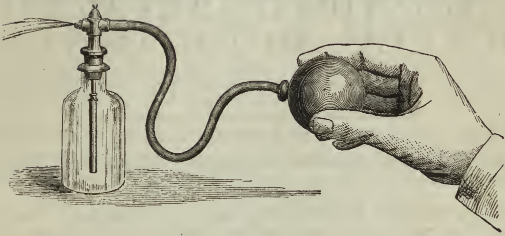
TRADE MARK

A 1 ODORATORS,

WITH REGISTERED TELESCOPE TUBE,

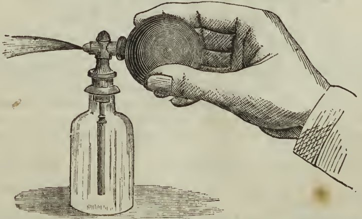
FOR PERFUMING APARTMENTS OR DIFFUSING DISINFECTANTS.

WITH ELASTIC TUBE.



32s. Per Doz. 32s. Per Doz.

PORTABLE, WITHOUT ELASTIC TUBE.



24s. Per Doz. 24s. Per Doz.

CAN BE ARRANGED TO SUIT ANY ORDINARY PERFUME BOTTLE.

REGISTERED MAY 16, 1874.

S. MAW, SON & THOMPSON,

10, 11 & 12 ALDERSGATE STREET, LONDON, E.C.

SCHMEDES & CO.,

Chemical Agents AND Importers of Drugs,

6 CASTLE STREET, FALCON SQUARE, LONDON, E.C.

Prices on application, to Wholesale Houses and Merchant Shippers only, for Alkaloids, Essential Oils, Pure Chemicals, and Drugs as imported.

Sole Wholesale Agents for the United Kingdom and the Colonies for

F. A. SARG'S SON & CO.'S

CHEMICALLY PURE GLYCERINES AND TOILET GLYCERINE ARTICLES.

CHEMICALLY PURE GLYCERINES.

Sarg's Double Distilled Glycerine, Chemically Pure,
30° Beaumé, in Cases of Four 56-lb. Tins each; Twenty 5-lb. Bottles, Fifty 1-lb. Bottles, and 100 ½-lb. Bottles, with Registered Label.

Sarg's Double Distilled Glycerine, Chemically Pure,
In ½-lb. and 1-lb. Bottles, should have a place in every nursery on account of its salutary action on the heads of children, relieving them from dandriff and the roughness of the scalp they are so commonly subject to.

Sarg's Distilled Glycerine, Chemically Pure, P.B.,
29° Beaumé, in Cases of Four 56-lb. Tins each.

Crude Glycerine, in Bulk.

TOILET GLYCERINE ARTICLES.

Transparent Glycerine Soap,
In registered Packets of three Tablets, 1s. Warranted to contain 33% of the purest Glycerine. Also in round Tablets, three in a Box; and in oval Tablets in paper.

Liquid Glycerine Soap,
Best preventive against chapped hands, 1s., and unrivalled for imparting softness to them, and rendering them clean and white. See Testimonials of Professor J. von Liebig, Baron; and of Professor F. Wöhler.

Scented Glycerine,
In Bottles at various prices. Either pure or diluted with water, this Glycerine is very successfully used for softening the skin, preserving the complexion, and preventing the very unpleasant roughness of the skin in cold weather.

Glycerine Cream
Is quite unequalled for imparting a fresh and healthy colour to the lips and keeping them from chapping.

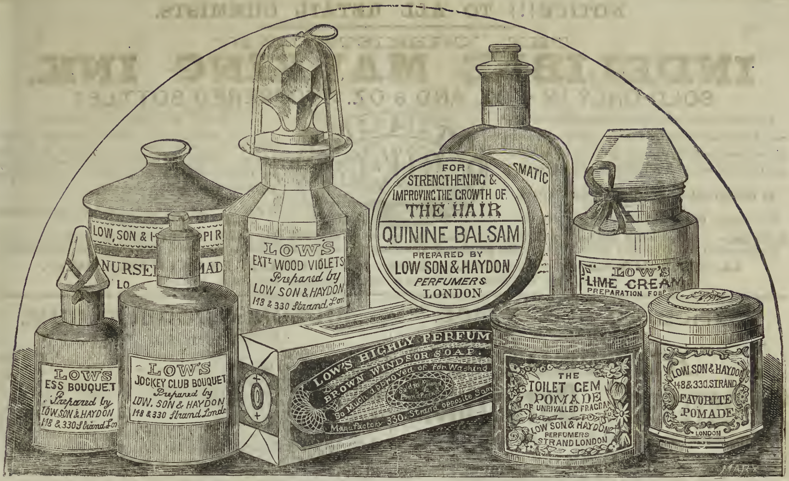
Sarg's new Carbolic Glycerine Soap,
In Boxes of three Tablets, is highly recommended as a most effective disinfectant.

TESTIMONIAL of Professor J. v. LIEBIG, Baron; and of Professor F. WÖHLER, Medical Counsellor at Gottingen.

In the hope of bringing into general notice a new and exceedingly useful industrial product, we willingly declare that, at the desire of Mr. F. A. SARG, of VIENNA, we have caused to be subjected to a careful examination the GLYCERINE SOAPS manufactured by him, and that we have convinced ourselves of their appropriate nature and their excellence, of the purity of the Glycerine contained in them, and of their strikingly salutary effect upon the skin. Most particularly would we recommend the LIQUID GLYCERINE SOAP invented by him, which, as no other does, retains the skin in a tender and pliant condition.

MUNICH AND GOTTINGEN, *July*, 1869.

Stock held by all Wholesale Druggists and Patent Medicine Houses.



R. LOW, SON & HAYDON,

Perfumers, Toilet Soap Makers, and Brush Manufacturers,

330 and 148 STRAND, LONDON,

Beg respectfully to call the attention of Druggists and all Vendors of Perfumery to the Quality and Prices of their

TOILET SOAPS, EXTRACTS, POMADES, HAIR AND TOOTH BRUSHES, &c.,

Which have for many years by their superior excellence commanded the admiration of the civilized world.

Detailed Lists forwarded on receipt of Business Card.

CAUTION!

To the TRADE in the UNITED STATES of AMERICA.

LOW'S BROWN WINDSOR, HONEY, GLYCERINE, TURTLE OIL,

And other TOILET SOAPS.

The well-established reputation of the above Soaps, and the great patronage bestowed upon them, having induced various imitations, from time to time, to be prepared and sold for the genuine, the Proprietors beg to caution all persons dealing in the same, as it is their determination to endeavour promptly to suppress such counterfeits, and thus protect their friends from disappointment.

LOW'S CELEBRATED EXTRACTS & CHOICE PERFUMES.

The Proprietors beg to call attention to the new and much admired style of Bottle in which they are now shipping these goods, in the larger sizes, viz.—The "**GILT TOP SPRINKLER**," which will be found to combine the great advantages of *elegance of appearance* with *economy in use*, and wherever introduced commands a large sale.

SOLE MANUFACTURERS,

ROBERT LOW, SON and HAYDON,

330 *and* 148 *STRAND, LONDON.*

NOTICE!!!—TO ALL RETAIL CHEMISTS.

THE "CHEMIST'S OWN"

INDELIBLE MARKING INK.

SOLD ONLY IN 4 OZ. AND 8 OZ. STOPPERED BOTTLES.

Is guaranteed to be superior to all others, and the sale of it, in half-drachm and drachm bottles, will prove far more remunerative than any of the numerous Marking Inks now brought before the notice of the trade.

It is also specially adapted for Export.

N.B.—Special Terms to Wholesale and Export Agents.

From The Chemist and Druggist.

"A real novelty in the marking ink trade is something worth noting. Messrs. G. F. Kneen & Co., 148 Strand, advertise that they supply a first-rate marking ink in bulk, thus giving chemists the opportunity of putting up their own as required."

A Packet of "Directions for Use Labels" supplied gratis on application.

Sold only in Stoppered Bottles, containing 4 fluid ozs. 5s. 6d., 8 ozs. 10s. 6d., less usual discount, by S. Maw, Son & Thompson; W. Mather; Lynch & Co.; the principal Wholesale Houses, and the Sole Proprietors and Manufacturers,

G. F. KNEEN & CO., 148 STRAND, LONDON, W.C.

DEPOT FOR CHARLES KERSHAW'S PREPARATIONS FOR THE TOILET.

NOTICE TO THE TRADE.

RUTTER'S

REGISTERED OSTRUTHIUM,

Recommended by eminent Dentists and Patronised by Royalty,

Is most effective for whitening and beautifying the Teeth, preventing Decay, and inducing a healthy action of the Gums.

It bears a good profit, is ornamental in appearance, and where introduced the sale constantly increases.

In Bottles, 1s. each.

London Agents.—Sanger & Sons, Tidman & Son, Sutton & Co., and Newbery & Sons; or of the Proprietor,

RUTTER & CO., Ostruthium Manufactory, Combe Martin, Barnstaple, NORTH DEVON.

Dr. C. R. Coffin's AMERICAN DENTIFRICE.

Prepared only by William Darling, Chemist, Manchester. May be had from S. Maw, Son, & Thompson; Barclay & Sons; F. Newbery & Sons; Sanger & Sons; and any Wholesale House in London. Price 2s. per Box, and Family Jars 10s. each.

COMPARE

BERDOE'S FRENCH ESSENCES

No. 24 (Triple), 8/6 per Pint of 20 ounces,

With those for which you have been paying 12/0 for 16 & 18 ozs. only.

Berdoe's Jockey Club and Frangipane are, without question, the finest in the Market. Every known French Perfume in the highest perfection, at 8/6 per pint—except Violet, Musk, Ambergris and Civet. (See Price List.)

Terms—Net Cash only.

E. BERDOE & CO., French Importers & Manufacturers, 511 Hackney Road, London.

HARPER TWELVETREES & SON'S

BALL BLUE,

GLYCERINE SOAP POWDER,

AND

AUSTRALIAN WOOL SCOURER

SENT TO ALL PARTS OF THE WORLD.

CORDOVA WORKS, BOW, LONDON, E.

JUDSON'S DOUBLE GUM.

"A GUM THAT WILL STICK."

Retail.	(Registered.)	Per Doz.
1s.	1 Dozen in Box, with 1 Dozen Brushes and Caps 1 Show Card (Registered)	8s.
6d.	1 Dozen in Box, with 1 Dozen Brushes and Caps 1 Show Card (Registered)	4s.
4d.	1 Dozen in Box	2s. 4d.
1d.	1 Gross in Box, or ½ Gross in Box .. .. per gross	8s.
1s.	Pints, 1 Dozen in Box .. .. per dozen	8s.
6d.	Half-pints, 1 Dozen in Box .. .. .. per dozen	4s.

GUM.—"A Gum that will stick" has been a long-sought-for requisite. Daniel Judson & Son's Double Gum effects this desideratum, in addition to which it is got up in a most attractive style. The show-card upon which the bottles are exhibited being indeed unique, has been protected by "registration," and is a very ingenious arrangement, admirably answering its purpose for displaying the Gums, either in the window or on the counter, being adapted to stand firm or hang on a nail.—Vide *Monthly Circular*. N.B.—The Sixpenny Export Gum (new) packs with great economy and safety.

Daniel Judson & Son, Southwark St.. London.

ROSE ODONTINE.

TRADE REGIS TERED MARK

ROSE ODONTINE THRESH'S

This most exquisite of Toilet requisites has been reduced in price as under :—

1/6 size, 12/ doz., less usual discount.
2/6 ,, 21/ ,, ,, ,,

Since June 1st all the ODONTINE sent out has contained a considerable percentage of Salicylic Acid, and it is now undoubtedly the most pleasant and efficacious preparation for the Teeth ever offered to the Trade.

Wholesale Agents—Sanger and Mather, London; Mather and Woolley Manchester.

FOR CLEANING PLATE.

BRADLEY & BOURDAS'S

ALBATUM or WHITE ROUGE,

For CLEANING GOLD, SILVER, and PLATED GOODS.

Since its introduction as a substitute for the ordinary Rouge, a quarter of a century ago, the sale has amazingly increased both at home and abroad. A trial is only needed to prove its superiority over other plate powders in use. Sold in Boxes at 1s. and 2s.; Tins, 6s. 7 PONT STREET, BELGRAVE SQUARE; and 48 BELGRAVE ROAD, LONDON, S.W.

OKELL'S ORIGINAL MONA BOUQUET.

Retail, 1/, 1/9, and 3/6; Wholesale, 9/, 15/, and 30/ per doz.

This much-admired Perfume (prepared by the Widow of the late Joseph Okell), may be obtained from the leading Patent Medicine Houses, Wholesale Druggists, and Druggists' Sundry Dealers.

Applications for Wholesale Agencies to be made to the Sole Consignee, **THOMAS WEST, Chemist, Stretford, Manchester.**

Estd.] [1712.

D. & W. Gibbs,

The City Soap Works, London.

Composite Household Soap,

Unites in itself the durability of Curd, the free washing property of Primrose, and the strong cleansing power of Mottled. It is dried and compressed by machinery, so that ½-lb. Cake is equal in use to ¾-lb. ordinary Soap.

Soft BS / M **Soap,**

In 7 lb. & 2 lb. Tins.

Free from smell and from any excess of alkalinity, but possessed of the greatest detergent power. Strongly recommended by Dr. Letheby and Dr. Normandy.

The Naples Tablet of Armand et Fils

Is the finest Toilet Soap in the World. Used by the Queen.

The University Old Brown Windsor Tablet,

As especially prepared for Oxford and Cambridge.

Pure Honey Soap. Juniper Tar Oil Soap.

Carbolated Brown Windsor Soap.

Transparent Glycerine Soap

Medical Oil Soaps. According to Pharmacopœia, 1864.

Every other description of Toilet, Hard, and Soft Soaps, especially prepared for both Home and Export Trade.

Prices and Samples on application.

Prize Medals, 1851, London. **The Silver Medal, 1867, Paris.**

Sole Proprietors of the following Specialities.

ESTABLISHED 100 YEARS.

FANCY SOAPS & PERFUMERY,

T. F. BRISTOW & Co.,

MANUFACTURERS,

WHOLESALE AND FOR EXPORTATION.

Glycerine and Oatmeal Soap Glycerine and Carbolic Acid Soap .. Lavender Skin Soap .. Carbolic Acid Soap ..	All nicely perfumed. In bxs. of 3 Tablets, 1*s.* & 1*s.* 6*d.*
Pure Coal Tar Soap .. Stockholm Tar Soap ..	In bxs. of 3 Tablets, 1*s.* 6*d.*, and in Oval Tablets, 4*d.*, 6*d.* & 8*d.*

	In bxs. of 4 Tblts.	In bxs. of 12 Tblts.
Baby Soap for Nursery use (Illustrated Label) ..	1*s.*	2*s.* 9*d.*
Family Soap	1*s.*	2*s.* 9*d.*
	In bxs. of 3 Tblts.	
Cold Cream Soap	1*s.* 6*d.* & 2*s.* 6*d.*	
Transparent Soap .. Rose Transparent Soap ..	1*s.* & 1*s.* 6*d.*	

Dog Soap (Illust. Wrapper) Carpet and Cloth Soap .. Pumice Stone Soap .. Zinc, Sulphur, Petroleum, Petroline, Juniper, Tar, & other Medicated Soaps ..	In Tablets, 6*d.* & 1*s.* each.
Prepared Oatmeal Powder, in boxes, 6*d.* & 1*s.*	
Glycerine Jelly, in bottles, 6*d.* & 1*s.*	

Every description of Toilet and Fancy Soaps manufactured for Home and Export Trade Choice Perfumes in bulk, and in every variety and style, at Prices according to Quality, &c. Price Lists on application.

5 BISHOPSGATE AVENUE, LONDON, E.C.

YARDLEY & CO.

(*ESTABLISHED* 1770),

MANUFACTURERS of Old Brown Windsor, Honey, Sunflower-Oil, Glycerine, Elder Flower, and every description of Fancy Soaps and Perfumery, for the Home and Chemist and Druggist Export Trade.

Importers of French and Italian Essences, Extracts, Pomades, Naples Soap, Eau de Cologne, &c., Bruetchel's Medicated German Soap, Sulphur Soap, &c.

7 Vine Street, Bloomsbury, London, W.C.; and

5 Rue du Grand Chantier, Paris.

Price Lists forwarded on application.

EWEN'S Clarified Lard, Marrow, and Suet.

James Ewen is induced to give further publicity to these articles, the continued demand by all who have used them being satisfactory proof "that where purity of basis" in ointments, &c., is required, they are most desirable.

By his method of purifying, the fats are not chemically altered, but simply divested of all particles tending to decomposition, they are consequently available for the most delicate preparations.

Adeps. Benz. B. P. and Pharm. Lard (*vide* P. J. Vol. I., No. 8), 13d. per lb. Direct, "for Cash only," from

EWEN'S CLARIFIED FAT WORKS,
5 Hatfield Street, Stamford Street, S.E.;

Or through any of the Wholesale Houses, with their usual credit, at a small advance.

Orders received also at Ewen's Medical Plaster Manufactory, 106 Jermyn Street, St. James's, S.W., London.

Caution.—See that each package bears his label with name and weight.

40 STRAND.

THE CROWN PERFUMES AND TOILET REQUISITES

TRADE MARK

FIRST MEDAL AT VIENNA

Specialities : * TANGLEWOOD BOUQUET.
* MEADOW QUEEN.
* HAWTHORN BLOOM.
* MALLICOLA.
* BUTTERFLY ORCHIS.

FOULKES' CEMENT,

AS USED AT ALL THE GOVERNMENT MUSEUMS.

Suited for any substance, from glass and china to leather, wood, or iron, and the articles joined bear washing in boiling water.

The large range of materials to which this cement is applicable, its transparency, strength, and facility in use, and the readiness with which it adheres, renders it, without doubt, THE MOST USEFUL EVER INVENTED. It is equally applicable to articles of the coarsest or the most delicately constructed.

The great success which attended its introduction, now more than 20 years ago, has given rise to a host of imitations, under as many various titles. Some of these being of an exceedingly crude character, and most unsatisfactory to both vendor and buyer, the above celebrated Cement is uniformly prepared and neatly put up, and is guaranteed to remain unchanged in any climate. **Sold in bottles at 1s. and upwards; sample bottles, 6d.**

FOULKES' TOILET AND NURSERY POWDER,

IMPALPABLE AND DELICATELY PERFUMED.

This unique Powder possesses the emollient properties of fullers' earth, free from colour, and in a high condition of purity. **Sold in boxes at 1s. and 6d.** Wholesale at the Patent Medicine Houses and Druggists' Sundries Men, or from

W. J. FOULKES, Operative Chemist, Birkenhead.

RIMMEL'S

PHOTOCHROME.

A NEW POMMADE

To Restore Grey Hair and Beard to their original colour, through the agency of LIGHT.

Rimmel's Photochrome acts on a new and totally different principle. As its name indicates, it restores to Grey Hair and Beard their lost colour through the agency of Light, which gradually developes the shade, passing from the lightest *blond* to the darkest black. Far from drying up the hair, as do all progressive dyes and so-called *Hair Restorers*, it nourishes them and promotes their growth.

Rimmel's Photochrome is warranted to contain no lead, mercury, or any other ingredient capable of affecting the health in any way.

The Photochrome is principally suitable to hair that is just turning grey; but when it is already quite grey it is preferable to use, for the first time, Rimmel's Instantaneous Liquid Hair Dye, which will produce at once a perfectly natural shade, repeating the operation every three months, and keeping up the colour in the intervals by means of Photochrome.

TRADE MARK.

Price of the PHOTOCHROME, 3s. 6d.; of the HAIR DYE, 5s. 6d.; with the usual allowance to the Trade.

EUGENE RIMMEL,
PERFUMER BY APPOINTMENT TO H.R.H. THE PRINCESS OF WALES,
96 STRAND; 128 REGENT ST.; & 24 CORNHILL, LONDON.
DETAILED LIST ON APPLICATION.

TO CHEMISTS AND DRUGGISTS.

NEW FRENCH PLATE POWDER

FOR CLEANING ALL

Jewellery, Gold, Silver, and Plated Goods, Copper and Brass Work, Mirrors and Windows,

With greater rapidity and less labour than any of the Compositions now in use. Also,

NEW POWDER FOR RESTORING PLATED GOODS

IN THE COURSE OF A FEW MINUTES.

Guaranteed to be free from any combination of Mercury. Prices and Trade Discounts on application to

MORGAN, ALLSOPP & CO., 42 Cannon Street, LONDON, E.C.

Sample Box of either on receipt of 1s. in stamps. Country Agents Wanted.

E. BOLLANS & CO.,

Perfumers, Manufacturers of Christmas Cards,
Sachets, Valentines, Silk Bookmarkers, &c.

E. B. & CO.'S BIJOU PERFUME CASKET

For delicately Perfuming Ladies' Wardrobes, Glove and Handkerchief Boxes, Writing Cases, Jewel Boxes, &c., &c.

PRICE TO TRADE, 3s. PER DOZEN.

SHIPPERS SUPPLIED.

RANELAGH WORKS, LEAMINGTON.

SOAP WORKS, SOVEREIGN ST., LEEDS.

ESTABLISHED UPWARDS OF 50 YEARS.

JOHN N. PICKERING,

MANUFACTURER OF

OLIVE & CROWN SOFT SOAPS,

AND

HARD SOAPS USED FOR MANUFACTURING PURPOSES.

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WHITAKER & GROSSMITH'S PURE WHITE GLYCERINE SOAP.

Richly perfumed, and possessing the Emollient and Cosmetic properties of Glycerine for the Skin and Complexion.

1s. 6d. Boxes of Three Tablets. 12s. per Dozen Boxes.

SPECIAL ARTICLES PARTICULARLY NOTED FOR THEIR EXCELLENCE:

TOILET SOAPS.			Per doz.
Cent-Fleur (*copyright*)	2/6	Boxes of 3 tablets	20/
Jockey Club ...	1/6	"	12/
Musk Windsor ...	1/6	"	12/
Sandringham ...	1/6	"	12/6
Glycerine Skin ...	1/	"	8/
Semi-Cut Bars ...	1/	Bars of 6 kinds	8/6

BOUQUETS.		Per doz.
Cent-Fleur (*copyright*)	Glass Stoppered or Sprinkling cap Bottles.	12/ 18/ & 24/
Inimitable		
Pearl of Perfumes ...		
Stephanotis ...		
White Rose		
Ylang-Ylang ...		

POMADES, &c.	Per doz.
Cent-Fleur (*copyright*)	8/, 12/ & 20/
Glycerine Lime Cream	8/, 12/ & 18/
Brilliantine	8/, 12/ & 20/
Anglo Eau de Cologne	8/, 8/6 & 12/6
Bay Rum Extract	12/
White Cherry Tooth Paste	8/ & 12/

TRADE PRICE LISTS SENT AND ORDERS EXECUTED THROUGH WHOLESALE HOUSES, OR DIRECT FROM THE MANUFACTURERS,

WHITAKER & GROSSMITH, Wholesale Perfumers, 120 Fore St., City, London.

CRAWSHAW'S ANILINE DYES (CRYSTALS).

IN BOXES 6D. AND 1S. EACH.

The Proprietor, in introducing these Dyes to the Trade, claims for them the following advantages:—

One Sixpenny Box will go as far as Six Sixpenny Bottles of the Liquid Dyes.

Each Box will produce any desired shade of its own colour, according to the amount used.

The colours are the most Beautiful and Brilliant which can be produced, and comprise all the popular shades.

There is sufficient in one Sixpenny Box to Dye a Lady's Dress, or half a dozen Children's Frocks, or one hundred yards of Ribbon, &c.

There is no loss from leakage or broken bottles. The Dyes will keep any length of time if kept dry.

The Dyes can be used for an endless number of purposes, which are too numerous even to mention within the limits of a small advertisement.

The Dyes are so easy to use that anyone can use them, even without previous experience.

The Dyes are perfectly soluble in Hot Water.

Full directions enclosed with each box.

VIOLET.
MAGENTA.
PUCE.
CRIMSON.
BLUE.
MAUVE.
BROWN.
YELLOW.
BLACK.
GREEN.
PONCEAU.
PINK.
MAROON.
SCARLET.

Opinions of the Press on CRAWSHAW'S ANILINE DYES.

"The advantage of these Crystalline Dyes over the Liquid ones is in point of economy, a Sixpenny Packet being equal to a large quantity even of concentrated liquid."—*Chemist and Druggist.*

"We have tried two or three of the samples sent to us, following the directions given, which are very simple, and the results we obtained were most satisfactory. We certainly think the introduction of the Dyes in this form will render them still more popular than they have hitherto been."—*Mather's Monthly Price Current.*

"There are few Englishwomen, probably, who are not aware of the value of manageable Dyes for domestic purposes, or of the economy effected by their use. Fluid Aniline Dyes are more or less familiar to us all, but the Crystal form introduced by Mr. Crawshaw is a novelty. The colours they produce are unquestionably beautiful; the mode of employing them is as simple as it can possibly be, while almost anything in the shape of Silks, Ribbons, Feathers, and Woollen Goods can be dyed with them."—*Exchange and Mart.*

"Mr. E. Crawshaw, of Burnley, is introducing Aniline Dyes in the dry form, and has submitted specimens of seven different colours, the majority of which we have practically tested. The colours are certainly very brilliant, and lead one irresistibly to reflect upon that wonderful discovery of modern times which has resulted in the elimination of splendid dye-matters from so unpromising a substance as coal-tar. The Aniline Crystals are packed in small boxes to retail at 6*d*., and as they are unquestionably cheap, will doubtless find ready appreciation. Capital Ink may be made from most of the colours—Violet in particular."—*British Trade Journal.*

For Export, the Dyes are packed in 6-Gross Tin-lined Cases, either assorted or separate colours.

EDW. CRAWSHAW, 64 ST. JAMES' STREET, BURNLEY, LANCASHIRE.

Wholesale Agents: Newbery & Sons, Barclay & Sons, Sanger & Sons, Crotch & Co., London; W. Mather, London and Manchester; Goodall, Backhouse & Co., Leeds; Wm. Foggitt, Thirsk; McMaster, Hodgson & Co., Dublin, and most Wholesale Houses. *Applications for Agencies for America and the Colonies respectfully invited.*

SOFT WHITE HANDS.

(Trade Mark, entered at Stationers' Hall).

Wheeler's Glycerine Jelly, in neat cases, each containing 1 doz. 6*d*. or 1 doz. 1*s*. bottles. Sold by the Wholesale London Houses, also by Goodall, Backhouse & Co., Leeds; Wm. Foggitt, Thirsk; Raimes & Co., and Clarke, Bleasdale & Co., York; Evans, Sons & Co., and J. Thompson, Liverpool; John Ismay, Newcastle-on-Tyne; James Woolley, Sons & Co., Manchester.

PROPRIETOR:

C. WHEELER, Ph. Chemist,
143 Hackney Road, London.

FINEST
LAVENDER WATER,

SPECIALLY PREPARED BY

SAMUEL FOULGER & SON,
WHOLESALE AND EXPORT DRUGGISTS,
133 Saint George Street,
LONDON.

ESTABLISHED 1760.

In original Bottles of	4 ozs.	6 ozs.	8 ozs. and 16 ozs.	
At	2/-	2/9	3/4	6/6 each.

In bulk, 5/6 per lb.

A Liberal Discount allowed to the Trade.

ENTERED AT STATIONERS' HALL.

PILOSAGINE.

Retail at 1*s*. 6*d*.; Wholesale, 12*s*. per doz. (less usual discount).

Sold in enlarged Bottles, packed in attractively labelled Card Boxes, suitable alike for Counter Stand or Window, is extensively advertised, and commands a ready sale wherever introduced.

Registered [PILOSAGINE] Trade Mark.

Special Notice to Chemists and Druggists.

PILOSAGINE will be advertised in your local newspapers, free of charge, with your name attached as agent, on receipt of trade card or label.

Any number of Bills, containing 15 convincing testimonials, all of recent date, supplied free of charge by the Sole Proprietors and Manufacturers,

WRIGHT & CO.,
Pilosagine Manufactory, HULL.

Wholesale Agents—Sanger & Sons, Barclay & Sons, Newbery & Sons, Hovenden & Sons, London; Goodall, Backhouse & Co., Leeds; Lofthouse & Saltmer, Hull; and all the Wholesale Houses.

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COLONIAL BUILDINGS, 44A CANNON STREET, LONDON, E.C.
Published on the 15th of each Month.

Subscription, 10s. per year, payable in advance; commencing from any date.
Post free to every country in the world.
Single Copies, 1s. each.

A Copy of THE CHEMISTS' AND DRUGGISTS' DIARY, published annually, is presented to every subscriber. Price to non-subscribers, 3*s*.

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Cheques and Post-office Orders to be made payable to *Edward Halse* and crossed Martin & Co.

No one is authorised to collect money without production of the Proprietors' lithographed form of receipt.

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All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

Subscribers are requested to observe that the receipt of THE CHEMIST AND DRUGGIST in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further number will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order, without an exact system like this.

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THE MONTH

The meeting of the British Pharmaceutical Conference at Bristol, on August 24 and 25, is the most prominent event of the past month, and all the circumstances in connection with it will be found duly reported in our present issue.

The coincidence of this report with our Educational Number causes a considerable pressure on our space, which must account for some condensation in other matters.

The President of the Chemical Section of the British Association (Mr. A. G. Vernon Harcourt, M.A., F.R.S.) gave a general address, urging on English men and women of wealth and leisure the pursuit of some science like chemistry. In the latter portion of his remarks he ably showed how theories once formed seem to have too much influence over us in our after studies, and how a false one may sometimes obscure the truth by limiting the scope of our researches. We must go on making vast collections of facts, and some day the Newton will arise who will generalise the science.

The discussions at the Pharmaceutical Council this month referred exclusively to examinations. Mr. Greenish remarked on the higher percentage of success at the Edinburgh than at the London examinations, and appealed to Mr. Mackay for an explanation. Mr. Mackay was not able to give one, unless it were that the candidates in Scotland were better prepared. Deputations had visited Edinburgh, and had reported that the most perfect uniformity seemed to prevail in the examinations of the two boards. Mr. Hills said the higher character of Scottish general education might perhaps tell on these technical examinations. The Privy Council office forwarded the official reports of the Government inspectors respecting the examinations in 1874. These were dated March 31 and April 21 respectively, and they were sent from the Privy Council Office on August 21 —not a marked specimen of despatch on the part of My Lords. The inspectors both speak highly of the manner in which the examinations are conducted. The year 1874 was characterised by a rush of candidates insufficiently prepared, anxious to get through before the new regulations came into force; consequently, the percentage of failures was much greater than it had been previously both in London and Edinburgh. Dr. Douglas Maclagan has noted the special failures in the Minor, and shows that these number 2 in prescription reading, 1 each in pharmacy, materia medica and dispensing, 22 in botany, and 26 in chemistry; indicating that the young men get a good practical acquaintance with their business, but that this is empirical and not founded on a sound scientific basis. The same gentleman also urges the use of the microscope at least for the Major. Mr. Greenish mentioned that questions on the spectroscope had been put at one of the London examinations, and attention was called to this as being somewhat beyond the programme laid down. Mr. Williams, Mr. Hampson, and Mr Rimmington expressed their opinion that the microscope should be introduced in the Major examination.

The first meeting of the Council of the Irish Pharmaceutical Society was held in the library of the College of Physicians, Dublin, on Friday, September 10, Sir Dominic Corrigan, President, and Dr. Aquilla Smith, Vice-President. Several reporters presented themselves, but admission was refused. This is to be regretted, as we believe the Council is composed of such elements as would be sure to furnish material for lively reports. The business transacted at the first meeting was, we believe, mostly of a preliminary character, though certain indications were given of a desire on the part of the apothecaries to grant only one title, namely, the highest, that of pharmaceutical chemist. The "druggist" section will probably go for a lower grade, as well as in England, but the fact that this would correspond with English practice will be rather against than in favour of the prospect of its introduction in Ireland. All depends, however, on the attitude of the physicians, who in all disputes in the Council between "chemists and druggists" and "apothecaries" will hold the balance of power. The meeting was adjourned until September 22, when the Council will sit from day to day until the bye-laws are framed and agreed to.

A curious coincidence between the English and Irish Pharmaceutical Societies occurs in the fact that the name of William Allen is the first on the roll of both, in the one case Mr

Allen, of Dublin, one of the members of Council, being referred to, in the other the senior partner in the firm of Allen & Hanburys.

The Sale of Food and Drugs Act will come into operation on October 1 next, when previous Acts against adulteration will be repealed. We intend that our forthcoming Diary (of which a copy will be presented to every subscriber) shall be a complete legal compendium for the chemist and druggist, therefore full information respecting this Act will be found therein. Messrs. Wigner & Scott, the secretaries to the Society of Public Analysts, have issued a somewhat verbose commentary on the Act, with the object of showing, as far as they can, how analysts can make the best of it. "After dispassionately considering" the new Act, they are good enough to believe it to be "a sounder and more comprehensive measure than the one it repeals." This remark is somewhat alarming to tradesmen, who found the last Act sufficiently expansive to cover all sorts of transactions, both honourable and dishonourable; but it appears to have been written chiefly with the view of introducing the final flourish, "that for the very numerous and important amendments introduced, the Society of Public Analysts may honestly lay claim to the largest share of credit."

The chemists and druggists of the province of Nova Scotia have formed a pharmaceutical society, and they are now endeavouring to obtain an Act from their local legislature incorporating the society and regulating the sale of drugs and poisons.

The Board of Trade have again revised their scales of medicines and medical stores for emigrant ships. Two scales are now officially published, one to be used on North Atlantic steamships, when the voyage does not exceed thirty-seven days, and the second on all other passenger ships sailing under the Emigration Acts.

The Bristol Pharmaceutical Association held its annual meeting on August 20, when a satisfactory report was presented. Of nine botanical students who presented themselves at the Science and Art Department examinations from Mr. Leipner's class, five obtained a first class, three a second class, and one only failed to pass. The Council devotes five guineas from the "Hill's Prize Fund," divided into three sums of 2½, 1½, and 1 guinea respectively, to a competition, to be held on the 24th and 25th inst., in the subjects of the pharmaceutical examinations. Dr. Tilden and Mr. Ekin will conduct this examination. The financial statement of this association shows a balance of 1*l.* 7*s.* 3*d.* in hand.

A correspondent of the *Pharmaceutical Journal* is desirous to secure for pharmacy three of the vacant seats in Parliament, for "gentlemen to represent our highly important interests in the councils of the nation." The editor of that publication thinks such a demand would be futile; but he must have forgotten how, as Mr. Hills himself told us at Bristol, the Council ordered the Government to remove that reciprocity clause from their Irish Pharmacy Bill, and how the said Government, strong though it was, cowered before that audacious Council. What is impossible to men of such nerve as that?

Messrs. Widenmann, Broicher & Co., merchants, of Love Lane, Eastcheap, shipped some Persian opium to Rotterdam last month for the manufacture of morphia. On arrival one case was found to have been opened. Lately a man named Wrangham offered some opium similar to this to Messrs. Battley & Watts, Whitecross Street, for 15*s.* per pound. He was requested to leave a sample and call next day. Meanwhile, the police were communicated with, and when Wrangham came again he found himself faced by the representative of justice. He referred to another man, named Frederick Chandler, who was waiting outside. Chandler had been employed in loading the steamship *Ranger*, in which the Messrs. Widenmann's opium had travelled. Prisoners were tried before Mr. Alderman McArthur, on September 2, who remanded them for some formal evidence. The vigilance of Messrs. Battley & Co. in this case, as well as in that of some perfumed spirits a year or two ago, ought to induce commercial amateurs to fight shy of them unless their business will bear the strictest investigation.

A large number of dentists from various parts of the United Kingdom met at the Clarence Hotel, Manchester, on August 31, to discuss the means of elevating and protecting the position of that profession. Mr. C. J. Fox, editor of the *British Journal of Dental Science*, presided, and urged the application to Parliament for an Act demanding the registration of all present dentists, and the examination of all future ones previous to registration. A committee was appointed to carry out that object. We gather from the tenor of Mr. Fox's remarks that he does not propose to interfere with the practice of dentistry by unregistered persons, further than to withhold from such the right to recover fees for dental operations.

Dr. O'Neill, of Lincoln, has replied in the *Lancet* to Mr. F. J. Clarke's letter which we reproduced in our last. He says he fully intends proceeding against Mr. Clarke for the money owing to him; and also that the dispute about that small account had not influenced him in his efforts to purge the land of Mr. Clarke's Blood Mixture.

A correspondent of the *Grocer* urges his fellow tradesmen to go into the patent medicine business, as a counter movement to the "pure tea" invasion on the part of the druggists. Another correspondent, however, regards "crockery" as a more desirable development of grocers' talents.

On August 21 a fire happened on the extensive premises of Messrs. Howard & Sons, manufacturing chemists, in Stratford High Street. It was caused accidentally by some fumes of chemicals coming in contact with a furnace, and, in spite of the efforts of the Metropolitan Fire Brigade, who attended with five steam and manual engines, it resulted in the destruction of a large laboratory, and in some damage to the roofs and walls of the factory itself and the store rooms. Messrs. Howard, it is believed, are insured.

A romantic affair has lately been partially investigated at Yeovil. A gentleman of considerable property, properly named Blackmore, but assuming the name of Turbeville, died somewhat suddenly and left behind him seven wills. By the latest, it is rumoured, he has left 20,000*l.* to the daughter of Mr. T. C. Maggs, a pharmaceutical chemist of the town, he being engaged to that young lady. Under another will the noted Mr. Bradlaugh, of London, would share in the distribution, and this gentleman, piously desirous of carrying out what he believes were his deceased friend's most righteous, if not his latest, wishes, shows indications of resisting the application of the consolatory 20,000*l.* to Miss Maggs. The evidence given at the coroner's inquest was to the effect that the deceased, being unwell, had obtained some simple medicines from Mr. Maggs' shop; that, getting worse, Dr. Aldridge was called in; that deceased was then nearly raving. Chloroform was administered to him both by Dr. Aldridge and by Mr. Maggs, jun., who states he was acting under the advice of Dr. Aldridge. Mr. T. C. Maggs then enters on the scene; Dr. Aldridge observed some crystals of cyanide of potassium about the mouth of deceased, and ran off to Mr. Maggs' shop for an emetic; Mr. Maggs soon after observed another crystal of the same salt, and follows Dr. Aldridge with the same intention. Shortly after Mr. Turbeville died. The jury found that death resulted from the deceased having, while in an unsound state of mind, taken cyanide of potassium, thereby increasing previous exhaustion, which resulted in death. The discussion as to the disposal of the fortune will probably be continued in another court.

Conducted by Richard J. Moss, F.C.S.

THE next exercise, like the last one, will afford our correspondents an opportunity for testing their skill in the detection of impurities or adulteration in official substances. Small samples of one of the chemical compounds of the Pharmacopœia will be sent to applicants, who are to name the substance and report as to its purity. Answers should include a concise and accurate account of the treatment to which the substance is subjected.

Students who intend to compete should send us their names and addresses before the 20th inst. On the 25th we shall forward the samples.

Students' papers will be received up to October 15.

Answers.

Cupri Sulphas, B.P., adulterated with ferrous sulphate, was the subject of the last exercise.

In chemical analysis it is always much easier to prove the presence of certain substances than it is to prove that others are absent. The difficulty of proving a negative—insurmountable in mathematics—is a severe tax to the skill of the chemist. In pronouncing an opinion on the quality of the copper sulphate, the difficulty was not concerning the presence of ferrous sulphate, but as to whether this was the only adulterant. Several other substances not so easily detected might have been present. Alkaline sulphates, for example, might have accompanied a small quantity of ferrous sulphate; and if they had been present they had a bad chance of being detected, judging from the reports before us. Of course a proper examination of the mixture would not leave any doubt as to its constituents, but scarcely one of our contributors thought it worth while to aim at such a high degree of accuracy. It is remarkable that most of them were satisfied when they found that the substance was copper sulphate, and that it contained ferrous sulphate. Nothing short of a systematic examination for the metallic and acidulous radicals could have fulfilled the requirements of the case. In most cases such a search involves a much smaller amount of work than might be supposed, considering the great number of substances that it includes. The system of random tests, so much in favour with the inexperienced, may appear to save time and trouble, but this is a great mistake, for the results arrived at are too uncertain to be of any value, so the saving is only apparent. Analytical work must be systematic. Those who have had experience in the use of a delicate chemical balance will remember how they lost patience in their first attempts at weighing. The weights were tried at random, and found, one much too light, another much too heavy, and so on, until at length the weight is determined with a feeling that there is something wrong. Soon, however, the necessity for system becomes evident, and it is found that the weights must be tried in regular order, beginning with a heavy one, and then trying the next in size, until the required weight is arrived at, without any uncertainty. So it is in examining a substance for the metals. The group reagents are worse than useless if not employed in their proper order, and the systematic course, which appears long and tedious, is shortest in the end.

The qualitative examination of a salt containing water of crystallisation cannot be considered complete if this water is not taken into consideration. It should be detected in the course of the preliminary examination. The subject of the last exercise contained a large proportion of combined water, which was overlooked by most of our correspondents.

Prizes.

The First Prize has been awarded to Thomas Tame (Perseverentia), Market Place, Trowbridge.

The Second Prize has been awarded to Donald Grant (Dolomite), 5 Pakenham Street, Belfast.

Marks awarded for Analysis.

Perseverentia (1st prize)	90
Dolomite (2nd prize)	88
Nemo	85
F. W.	85
Delta	83
Stramonium	82
Æneas	80
Fortuna	75
J. A. Halhead	70
Kali	50

TO CORRESPONDENTS.

⁂ All Communications should include the names and addresses of the writers.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as a second prize.

Delta.—In the examination of solids you will find it well worth while to subject the substance to a preliminary examination, such as you will find described in most works on chemical analysis. The information gained is generally of great assistance in the subsequent wet examination.

Stramonium.—Your quantitative determination was much too low; there was 33 per cent. of crystallised ferrous sulphate in the mixture. You could not expect to make a determination of any value without a balance turning with about ·01 grain, unless a large quantity of the substance was employed.

Æneas.—The iron reactions with potassium ferrocyanide and ferricyanide were modified by the presence of copper. It was evident, however, that iron was present in both the dyad and triad states, the presence of iron in the latter state being due to the alteration effected in ferrous sulphate by exposure to air.

Fortuna.—It was pure waste of time to begin the examination by adding ammonium chloride and hydrate to the aqueous solution; group reagents are no use unless employed in their proper order. The triad iron which you detected was an impurity in the adulterant.

J. A. Halhead.—If the mixture had contained 50 per cent. of alum your examination would not have detected it. This is a serious defect.

Kali.—There was no sodium carbonate in the mixture. The supposed effervescence which you attributed to the action of imaginary free sulphuric acid on the ideal carbonate is an instructive instance of the unscientific use of the imagination. In order to tell you why you did not *see* the ferrous sulphate under the microscope, we should first know how you knew that you could not see it. It is easy to understand why you should find it difficult to *recognise* ferrous sulphate crystals in a mixture which was powdered in a mortar.

F. C. and *Spes.*—We cannot forward samples to anonymous applicants.

A Sporting Druggist, we are told, started off last First of September, and, having reached his stubbly quarters ten miles away from home, found he had brought a box of pills instead of percussion caps. A gentle murmur, not complimentary to pharmacy, was wafted on the breeze, and our hero rejoined his family circle at an early hour.

CHEMICAL SCIENCE TEACHING.

By a Teacher.

It has fallen to my lot during the past year to give science lessons to young pupils whose early education has wisely included some branches of the study of nature. I have never had one pharmaceutical student, and few to whom the passing of an examination was of material consequence. Yet not only have examinations been passed with great success, but I would fain hope, and there is ground for confidence, that the spirit of good work has been engendered. I have thought, therefore, in this vacation time, that you who are about to enter on a definite course, and rather dread the prospect, would like to hear why chemistry proved so attractive, and was accepted more as a daily pleasure than as a task. First, where expense was no object, we set about seeing how far we could do without manufacturing aid with regard to apparatus, and our opening task consisted in taking Roscoe's "Primer of Chemistry," price 1*s.*, and, with the aid of a Bunsen's burner, price 2*s.* 2*d.*; a blowpipe, price 1*s.*; a pound of glass tubing, 1*s.*; two glass retorts, 1*s.* 6*d.*; and two dozen assorted test-tubes, 2*s.*, most of our difficulties were surmounted. Grove's battery was a serious item, 36*s.*, and on chemicals and sundries we spent 20*s.* There was no reason for this economy other than a wish to carry out Frankland's admirable advice that personal labour, contrivance, experiment, and observation are the chief methods by which a science may be acquired. They are not the sole methods; do not rush from one extreme to another. To learn by rote, or to seek to gain practical knowledge alone from books, is a grievous error, of which no one is more conscious than myself, for in former days I could repeat Fownes's "Inorganic Chemistry" *verbatim*, or, as the French say, *textuellement*, without a conception of its meaning; but to neglect books, and fancy that they teach little, or to neglect lecturers and imagine that they teach less, is a foolish delusion and contrary to all experience.

Still, nothing is more certain than that you may read treatises and attend courses for a long period, and yet one experiment done by your own hands, in the solitude of your own room, or, infinitely better, in company with one associate, will give a vividness of interest, a clearness of conception, and an accuracy of understanding to be derived from no other source. Hence, let me ask you at once to become able to bend glass, to seal tubing, to arrange corks, to extemporise condensers, and to the utmost to cultivate your ingenuity. Should you succeed, be thankful; should you fail occasionally, so much the better.

What shall you do first? As far as I know, you can do nothing better than go quietly through Roscoe's little book, "The Primer." It is very clear, and the engravings are sufficient as a guide. It does teach a number of indispensable general considerations.

There is quite enough for a fair start, and it is immeasurably superior to those improving catechisms which were formerly in vogue, or to mild conversations between a philosopher and an inquiring youth. The Primer treats of earth, air, fire and water, and then at once enters on the preparation of oxygen, hydrogen, nitrogen, and the non-metallic elements. Begin where you like —I prefer water, for many reasons, because the subject is of immediate interest and there is something to do and see, and the decomposition of water by the electric current into two parts of hydrogen and one of oxygen, brings home in a striking manner the truth of chemical statement. Then also you will meet with your first gas, hydrogen, and I hardly know which is the more interesting—to produce it from the sodium amalgam, or in the canonical way by means of zinc, water, and sulphuric acid. Gregory is of opinion that to perform this latter experiment well is a guarantee for other similar manipulations; and his book is excellent if only for the minute directions given for the way in which an experiment is to be performed. In his "Outlines" no detail is left unexplained; while for a beginner there is the advantage that quantities and weights are not omitted in descriptions.

I confess to a sincere admiration of his style, though the manual is an old one, and the nomenclature is not quite in accordance with that of more modern times.

Sincerely I would ask you to render thanks that it has not been your hard fate to grind through, as your insight into chemistry, the various reactions of the old London Pharmacopœia —to try by laborious effort to fathom their meaning—or to grope through the rudiments of the science by multifarious reading or the instructions of a medical lecture. That happened to your father, possibly, as in fact it did to mine. But when you take a piece of chalk and from it get carbonic acid gas—when you have made oxygen in many ways, and crystals also—when you have worked out experimentally the theory of flame, and gone through abundant demonstration of varied chemical action— when you have learnt and seen a good deal about carbon, chlorine, sulphur, phosphorus, iron, zinc, copper, lead, mercury, and the like—and ventured further on the production of the acids—you will have gained some real notion of the land that lies before you, some living pleasure in the pursuit itself, and some general, sensible comprehension of the whole matter. Till then, believe me, the best arranged lectures will float in mist before your eyes and you will be unable to reason correctly about facts that of necessity are rapidly presented.

A healthy, personal acquaintance with a quantity of facts relating to the elementary or simple substances is the best preparation for any system adopted afterwards; the best safeguard against misconception, and the surest mode of being able to reap the most advantage from the higher instruction of the professor.

I have found certain constant drawbacks when these preliminaries have been surmounted. First, a shakiness in arithmetic, and the art of working decimals: second, the want of some study of the law of combination in definite proportions; and last, a halting knowledge of the meaning of a chemical equation.

These are embarrassments, and they cause perplexity and much annoyance; and these drawbacks, even amongst this juvenile association, were removed. So our little band of hope progressed and are progressing—the very young look on and cannot be expected to understand what passes before their eyes: they are somewhat like acolytes who assist, but who faintly understand the service; but the elder really take things in, and they are tired neither of their subject nor of each other.

The explanation is simply this, that no science teacher need despair of arresting complete attention who will convey the whole of his preliminary instruction by means of experimental illustration; and who, on the repetition of the course will, as a reward for diligence, allow the most advanced amongst his class to become his demonstrators and perform such experiments as may be safely committed to their care. True, we had an occasional explosion, and we came to grief—once with hydrogen and once with phosphorus; but we are still alive, and try to let our chemicals conduct themselves with more discretion.

It happened that others more advanced in years, and a little more in general knowledge, wanted higher and more extended training: again the ultimate object was a liberal education, and not the pursuit of pharmacy. These students had the great gain of that power of mental concentration which mathematics and the classics can bestow so largely. Aided by an acquaintance with these two a man may successfully enter upon any other acquirement, and neither his intellect nor his powers of observation are injured by the habits of precision and patient inquiry that have thus been developed. A wider course had to be arranged, and it gave rise to considerable anxiety to choose a text-book. Fruitless were the attempts to follow one selected manual; equally vain on the student's part was it to extract from any single authority a comprehensive knowledge of what is termed Inorganic Chemistry. We ended, where I suppose all must end, in comparing and combining the information to be gleaned from various recent compilations. Roscoe's "Lessons in Elementary Chemistry" certainly formed the groundwork—but it could not stand alone. It proved admirable in many points —and we thought it unrivalled when it talked about Dalton's Atomic Theory: Atoms and Molecules, or the Quantivalence of the Elements; but when we found the whole history of Mercury shut up in barely more than two pages (1873), we were compelled to turn elsewhere. We regretted also, as we regret still, that the statement of the reactions and sentences of special importance are printed in the same type as the ordinary paragraphs in the text. These deficiencies were condoned by the presence of varied examination questions, the adoption of which plan has also contributed much to the value of Professor Attfield's clearly written and admirable treatise. To this last-mentioned author we were indebted for guidance in performing a multitude of experiments with inexpensive apparatus and on small quantities of reagents. The chief of these were drafted off to their respective elements, and tabulated under general headings in a manner which the construction of his own printed book did not admit. Lastly, we, as a class, owe him thanks for having rendered intelligible even to beginners the difficult subject of phosphorus and the theory of its compounds.

Perhaps it may interest those who are debarred from public systematic teaching and laboratory work to know the precise course which during the summer term divided that attention which is usually confined to strictly scholastic studies. The syllabus stands thus:—Introduction, chemical theories, laws and general considerations, oxygen, hydrogen, nitrogen, ammonia, carbon, sulphur, potassium, sodium, chlorine, mercury, bromine, iodine, and phosphorus. A second lecture, conversation and reference to points included under the title of Chemical Theory, based exclusively on the first chapter of Dr. Muter's "Chemistry." There we stopped, for we wished rather to know a few things well than to have a smattering of many, nor was there a necessity to crowd the circle of the sciences into a given space of time. We therefore retraced our steps with satisfaction, and, like all honest travellers, found pleasure in revisiting old spots and discovering things of interest which had escaped our notice. We were able to linger over facts which are impossible to comprehend at first, however thoroughly explained. All felt the help of this recapitulation, for chemistry, like a dead language, is so strange to the beginner, so utterly new, and must be revealed in such unaccustomed phrases, that much of its opening teaching is a maze of words and cunningly devised expressions. It is not given to most, particularly to such of us as lay no claim to genius, to have more than a feeble understanding at the onset of half we either read or hear.

The recapitulation began with potassium, sodium, and ammonium; followed by chlorine, bromine, and iodine; continued by sulphur, hydrogen, and carbon; reserving to the end two substances which seemed to present peculiar difficulties—hydrargyrum and phosphorus. During this second portion of the course we ventured on two things—the art of writing abstracts, and complete illustration by experiment.

Comparatively within the last few weeks has appeared that acceptable work, "How to Teach Chemistry," by Professor Frankland. Its directions will save much undirected labour, and science teachers will be grateful for its production. For there are none who have undertaken this department of instruction who have not discovered that in chemistry there is but one way either to interest or to teach, and that is by positive visible demonstration. There is but one way for a pupil to learn, and that is to be induced to teach himself by personal manipulation and observation. Once let him wander beyond theory and become a practical worker, and he will soon be able to state clearly the results of his experience. To a pharmacist who has to exercise an honourable handicraft, this inculcation of the practical will hardly seem necessary; but I may be allowed to point out the important bearing of these studies on the future career of those who are tempted to derive their sole intellectual pleasures from the pursuit of literature and the world of thought.

Educational Information.

THE opening of the medical, pharmaceutical, and scientific schools generally for the winter season will occur at the beginning of October. As usual, we give a few particulars respecting the requirements of the various boards of examiners, and we append to that a conspectus of many of the schools where the required instruction is provided.

PHARMACEUTICAL DIPLOMAS.

The right to practise as a chemist and druggist in Great Britain is, by the Pharmacy Act of 1868, restricted to such candidates as pass (*a*) the Preliminary examination, and (*b*) the Minor examination of the Pharmaceutical Society. The Major examination is purely honorary, and on passing it the title of Pharmaceutical Chemist is obtained. No curriculum of study is necessary, but candidates for the Minor examination must produce certificates of having attained the age of 21 years; and from January 1, 1877, each candidate will have to produce certificates to the effect that for three years he has been registered and employed as an apprentice or student, or has otherwise for three years been practically engaged in the translation and dispensing of prescriptions.

Regulations of the Board of Examiners for the Examination and Registration of Pharmaceutical Chemists, Chemists and Druggists, and Apprentices or Students.

In accordance with the Pharmacy Acts, 15 & 16 Vict. cap. 56; 31 & 32 Vict. cap. 121; and 32 & 33 Vict. cap. 117.

THE FIRST OR PRELIMINARY EXAMINATION.*

(For Registration as "Apprentices" or "Students.")

This Examination is held throughout Great Britain on the first Mondays in January, April, July, and October in every year. Candidates for this Examination must give not less than *fourteen* clear days' notice.

The Examination is a written one, and comprises—

Latin,—translation into English of a paragraph from the first book of Cæsar ("De Bello Gallico.")

Latin Grammar.

English Grammar, Composition.

The first four rules of Arithmetic, Simple and Compound, Vulgar Fractions, and Decimals, and a thorough knowledge of the British and Metrical systems of Weights and Measures.

In the case of candidates residing in the country and unable to attend in London or Edinburgh, the Registrar shall send the questions, under seal, to the person appointed to superintend the writing of the answers, with instructions that they be opened by him in the presence of the candidates, who shall write the answers forthwith in his presence in a given time. After this year the questions will be prepared and reported upon by the College of Preceptors.

The Board of Examiners in London meets for conducting the Minor and Major examinations every month, except in August and September. For the Modified Examination the Board meets as often as required. Candidates must give notice to the Registrar of their intention to present themselves, and pay the fee, on or before the first day of the month in which the examinations are held. A registrar's certificate of birth must be produced by each candidate at the time of giving notice. Secretary and Registrar, Elias Bremridge, 17 Bloomsbury Square, London, W.C.

The Board of Examiners in Edinburgh meets for the Major, Minor, and Modified Examinations as often as required. *Fourteen* days' notice is necessary. A registrar's certificate of birth must be produced by each candidate at the time of giving notice. The dates of meetings are announced in the *Pharmaceutical Journal*. Secretary to the Board in Edinburgh, John Mackay, 119 George Street, Edinburgh.

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* Certificates of having passed the Local Examinations of the Universities of Oxford, Cambridge, or Durham, the Examination of the College of Preceptors, or those of any legally constituted Examining Body previously approved by the Council, *provided Latin and Arithmetic be included in the subjects*, are accepted in lieu of this examination.

MINOR EXAMINATION.

(For Registration under the Pharmacy Act, 1868, as "Chemists and Druggists.")

Candidates for this Examination must have passed the First or Preliminary Examination.

The following form the subjects of examination:—

Prescriptions.—The candidate is required to read without abbreviation autograph prescriptions; translate them into English; and render a literal as well as an appropriate translation of the directions for use. To detect errors, discover unusual doses, and have a general knowledge of Posology; also to render in good Latin ordinary prescriptions written in English.

Practical Dispensing.—To weigh, measure, and compound medicines; write the directions in concise language in a *neat and distinct* hand; to finish and properly direct each package.

Pharmacy.—To recognise the preparations of the Pharmacopœia which are not of a definite chemical nature, and have well-marked physical characters, such as extracts, tinctures, powders, &c.; to give the proportions of the active ingredients and possess a *practical* knowledge of the processes, and the principles of the processes, by which they are made, and of the best excipients and methods of manipulation for forming emulsions, pills, &c.

Materia Medica.—To recognise specimens of roots, barks, leaves, fruits, resins, gums, animal substances, &c., used in medicine; give the botanical and zoological names of the plants, &c., yielding them, and the Natural Families to which they belong; name the countries and sources from which they are obtained, the officinal preparations into which they enter, and judge the quality and freedom from adulteration or otherwise of the specimens.

Botany.—To recognise the more important indigenous plants used in medicine. To possess a general knowledge of the elementary structure of plants, and the structure and distinctive characters of roots, stems, leaves, and their parts. To name and describe the various parts of the flower.

Chemistry.—To recognise the ordinary chemicals used in medicine. To possess a *practical* knowledge of the processes by which they are produced, the composition of such as are compound, and explain the decompositions that occur in their production and admixture, by equations or diagrams. To determine practically, by means of tests, the presence in solution of the chemicals in common use, and explain the reactions which occur in each case. To possess a general knowledge of the laws of chemical philosophy, and a *practical* knowledge of the means of determining specific gravities, densities, and temperature, and of the instruments appertaining thereto, and the physical and chemical constitution of the atmosphere.

MAJOR EXAMINATION.

(For Registration as Pharmaceutical Chemists under the Pharmacy Act, 1852.)

Candidates for this examination must have passed the Minor examination at least three months previously.

Materia Medica.—This comprises a *practical* knowledge of the methods of estimating the value of important drugs, of obtaining their active proximate constituents in a separate state; of identifying them and ascertaining their purity or impurity by tests.

Botany.—This comprises an intimate acquaintance with the parts of the flower, fruit, and seed; the functions and mode of arrangement of the different organs of plants; a knowledge of the general principles of classification, and of the Linnæan and De Candolle's systems. The candidate must be able to distinguish practically between each of the following Natural Orders:—Ranunculaceæ, Papaveraceæ, Cruciferæ, Malvaceæ, Leguminosæ, Rosaceæ, Cucurbitaceæ, Umbelliferæ, Compositæ, Gentianaceæ, Convolvulaceæ, Solanaceæ, Atropaceæ, Labiatæ, Scrophulariaceæ, Polygonaceæ, Euphorbiaceæ, Orchidaceæ, Iridaceæ, Liliaceæ, Melanthaceæ, Graminaceæ; and refer to their respective orders such specimens as may be shown to him.

Chemistry.—This comprehends an intimate knowledge of the laws of chemical philosophy, a *practical* knowledge of the nature and properties of the elements and their compounds, both organic and inorganic, especially those used in medicine or the arts. The different combinations and decompositions must be explained by equations; also the *qualitative* analysis of the more important chemicals, *e.g.*, Nitrates, Chlorides, Carbonates, Sulphates, Phosphates, Oxalates, Tartrates, &c., and the detection of impurities in them, and the *volumetric* estimation of the strength of all Pharmacopœia preparations in which standard solutions are ordered to be used.

An elementary knowledge of the properties of light, heat, electricity, and magnetism is also required.

If a candidate fail to pass either of the examinations, the fee will be returned, less one guinea, but he will be admitted to a subsequent examination, after an interval of three months, on giving the usual notice and payment of the full fee.

Examination or Registration Fees and Subscriptions to the Society.

FEES.	£ s. d.	ANNUAL SUBSCRIPTIONS on becoming connected with the Society.	£ s. d.
First or Preliminary (Registered as Apprentices or Students)	2 2 0	Eligible, on application to the Council, to be elected Apprentices or Students of the Society	0 10 6
Minor (Registered as Chemists and Druggists)	3 3 0	Eligible, on application to the Council, to be elected Associates of the Society	0 10 6
Major (Registered as Pharmaceutical Chemists) ..	5 5 0	Eligible, on application to the Council, to be elected Members of the Society .. .. Or a Life Member's Commutation Fee of Twenty Guineas.	1 1 0

Chemists and Druggists in business before August 1, 1868, and registered as such, on being elected Members of the Society, pay an Entrance Fee of £2 2 0
And Subscription for the current year 1 1 0
£3 3 0

THE SCHOOL OF PHARMACY.

CHEMISTRY AND PHARMACY	Professor REDWOOD.
BOTANY AND MATERIA MEDICA	Professor BENTLEY.
PRACTICAL CHEMISTRY	Professor ATTFIELD.

The Session commences on October 1, and extends to the end of July. Students can enter at any period.

CHEMISTRY AND PHARMACY.

By Professor REDWOOD, PH.D., F.C.S.

Lectures are delivered on Monday, Tuesday, and Wednesday mornings from 9 to 10 o'clock. The course consists of sixty lectures, comprising an exposition of the leading principles and doctrines of the science of chemistry, and of those branches of allied physical science the applications of which are involved in the qualifications required for the practice of pharmacy. There are two of these courses during the session, the course which commences in October and ends in February being repeated in the following five months, from the beginning of March to the end of July. Each course is complete in itself, and includes a description of all the most important chemical and galenical preparations used in medicine.

The Text-Books used in this Class are:—Ganot's "Elementary Treatise on Physics," translated by Dr. Atkinson, price 15*s.*; Pereira's "Elements of Materia Medica," edited by Professors Bentley and Redwood, price 25*s.*; Fownes' "Manual of Chemistry," 15*s.*; the "British Pharmacopœia," price 6*s.*

FEES.

	£	s.	d.
One Course	2	2	0
An entire Session (two courses)	3	3	0
Perpetual admission	4	4	0

BOTANY AND MATERIA MEDICA.

By Professor BENTLEY, M.R.C.S. Eng., F.L.S.

Lectures are delivered on Friday and Saturday mornings from 9 to 10 o'clock, during the months of October, November, December, January, and February; and on Thursday, Friday, and Saturday mornings during March, April, May, June, and July.

During the session extending from the beginning of October to the end of July three courses of lectures will be delivered—two on Botany and Materia Medica, and one on Systematic and Practical Botany. The first two courses will each consist of about forty lectures, and the latter course of twenty lectures. The two courses on Botany and Materia Medica will be essentially the same—the first course, which commences in October and ends in February, being repeated in the following five months. The two courses, although essentially the same as to the subjects treated of, from being delivered at different periods of the year—the first in autumn and winter, and the latter in spring and summer—vary in the manner in which they are illustrated and described.

COURSE ON SYSTEMATIC AND PRACTICAL BOTANY.

This course, which extends from about the middle of May to the end of July, is delivered in the Royal Botanic Society's Gardens, Regent's Park, on Friday and Saturday mornings at 8 o'clock.

The following are the Text-Books for the Three Courses on Botany and Materia Medica:—Botany, Bentley's "Manual of Botany," published by Messrs. Churchill, price 14*s.*; Materia Medica, Pereira's "Elements of Materia Medica," edited by Professors Bentley & Redwood. Longmans & Co., price 25*s.*

FEES.

	£	*s.*	*d.*
Botany and Materia Medica, one Course	1	11	6
Ditto, ditto, two Courses	2	12	6
Systematic and Practical Botany, each Course	1	1	0
Sessional Fee for the three Courses	3	3	0

A student entering for either of the first-named courses on Botany and Materia Medica is also entitled to attend the lectures on Systematic and Practical Botany on payment of two guineas at the time of entering his first course, or perpetual admission to all the courses may be obtained for four guineas.

PRACTICAL CHEMISTRY.

Professor ATTFIELD, Ph.D., F.C.S.

Pupils can enter for any period at any date.

The Laboratories are open from ten o'clock in the morning until five in the afternoon daily, except on Saturdays, when they are closed at two o'clock.

Students are guided in their work by the Professor and his Assistants.

Each student is provided with certain apparatus, chemicals, fuel, etc., and a working bench, with lock-up cupboards. A list of such as he must himself provide is printed, and all can be obtained for about 25*s.*

Text-Book:—Attfield's "Chemistry: General, Medical, and Pharmaceutical." (Van Voorst.) 12*s.* 6*d.*

FEES.

Hours of Study	One Month	Two Months	Three Months	Five Months	Ten Months
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
10.0 to 5.0 daily (Sat. 10.0 to 2.0)	4 4 0	7 7 0	10 10 0	15 15 0	26 5 0
10.0 to 5.0 on any 3 days weekly ..	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
10.0 to 5.0 on any 2 days weekly ..	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0
Any 3 hours daily	2 17 6	4 17 6	6 16 6	10 10 0	17 17 0
Any 2 hours daily	2 2 0	3 10 0	4 17 6	7 7 0	12 12 0

SOUTH LONDON SCHOOL OF PHARMACY.

The Session extends from September 15 to July 20, and two classes of students are received:—

Class A.—For students desiring a full and continuous ten months' course of instruction in chemistry, botany, materia medica, and practical chemistry, together with a knowledge of the microscopical and chemical analysis of food and drugs.

Class B.—For students who, having already obtained privately a knowledge of the subjects, desire to perfect their studies, and are yet unable to remain in London for longer than three months at a time. In this case the following lectures, &c., are given:—

Chemistry, practical and theoretical ...	60 lectures.
Botany, with field demonstrations ...	60 lectures.
Materia medica	60 lectures.
Practical pharmacy and dispensing ...	60 lessons.
Latin	60 lessons.

Director—Dr. John Muter.
Secretary—Mr. W. Baxter.

MEDICAL DIPLOMAS.

The General Medical Council fixes twenty-one as the earliest age at which a candidate for any professional license shall be admitted to his final examination, the age in all instances to be duly certified. Previous to this final examination, he must have been registered as a medical student at least forty-eight months, and must have gone through a course of professional study, comprehending attendance during four winter sessions or three winter and two summer sessions at a recognised school. The Medical Council also makes certain claims with regard to the examinations themselves. With regard to the Preliminary, which must be passed before a medical student may be registered as such, it is required that it shall include English language (including Grammar and Composition), Arithmetic (including Vulgar and Decimal Fractions), Algebra (including Simple Equations), Geometry (first two books of Euclid), Latin (including Translation and Grammar); and one of the following optional subjects: Greek, French, German, Natural Philosophy (including Mechanics, Hydrostatics, and Pneumatics).

For the Professional Examination it requires, "That the Professional Examination for a license be divided into two parts; the first embracing the primary or fundamental branches directly connected with the practice of medicine or surgery. That the former be not undergone till after the close of the winter session of the second year of professional study; and the latter, or final examination, not until after the close of the prescribed period of professional study.

"That the examination in Physics, Botany, and Natural History may be undergone at an earlier period than the first Professional Examination.

"That the Professional Examinations be conducted both in writing and orally, and that they be practical in all branches in which they admit of being so.

"That excellence in one or more subjects should not be allowed to compensate for failure in others; and that if a candidate be rejected for failure in any one subject he should be re-examined in all."

The foregoing are the requirements of the General Medical Council, which holds, and can withhold, the right of registration. The reader will bear in mind that these stipulations have to be observed by all the examining bodies, and this will save us much repetition.

The examining bodies themselves are the following:—

The University of Oxford, which grants the degrees of **M.B.** and **M.D.** The medical student must pass the requisite examinations for the degree of B.A., and afterwards spend two years in study prior to the first or scientific examination for the degree of Bachelor of Medicine, and two years more prior to the final or practical examination for the same degree. Evidence must be brought to show that he has studied the practical parts of his profession in a first-class hospital. A dissertation has to be publicly read three years after the M.B., for the degree of M.D.

The University of Cambridge, besides **M.B.** and **M.D.**, grants the degree of **M.C.** (Master in Surgery). For M.B. five years of medical study are required, except in the case of medical students who have graduated with honours as Bachelors of Arts, four years being then sufficient. There are three examinations. The *first* in Mechanics and Hydrostatics, Chemistry (with heat and electricity), and Botany. The *second*, in Anatomy and Physiology (Human and Comparative), and Pharmacology. The *third* (at the conclusion of medical study), in Pathology and the Practice of Physic, Clinical Medicine, and Medical Jurisprudence. The examinations are partly in writing and partly oral, in the hospital, and take place twice annually. Previously to the first examination, lectures must have been attended on Chemistry (with manipulations) and Botany. Previously to the second examination, the student must have attended lectures on Anatomy and Physiology (Human and Comparative), Materia Medica, Pharmacy, and Pathology; have dissected one season; and attended hospital practice one year. Previously to the third examination, lectures must have been attended on the Principles and Practice of Physic, Clinical Medicine, and Medical Jurisprudence; also Hospital Practice for three years.

The degree of M.D. may be taken three years after M.B. The regulations are similar to those at Oxford.

For the degree of M.C., the candidate must have passed the three examinations for M.B., and have attended lectures on Human Anatomy (a second course), on the Principles and Practice of Surgery, Clinical Surgery, Midwifery (with ten cases); also a second season of Dissections, three years' surgical practice at a recognised hospital, and a house-surgeony or dressership for six months. He is then required to pass an examination in Surgical Anatomy, Pathology, the Principles and Practice of Surgery, and Clinical Surgery.

The University of London stipulates for the **M.B.** degree. (1) The Matriculation Examination, or a degree of Arts, is accepted from the Universities of either Sydney, Melbourne, or Calcutta. (2) The Preliminary Scientific Examination and two examinations in medicine. The student must also have been engaged in professional studies at least four years subsequent to matriculation. The degree of **M.D.** may be competed for four years, or in some cases, five years after the M.B. degree has been taken. It includes logic and moral philosophy and medicine, including practical examination in clinical medicine. The University of London also grants the degrees of **B.S.** and **M.S.** (Bachelor and Master in Surgery). These comprehend the M.B.

The University of Durham grants a license in medicine four years after matriculation, **M.B.** three years later, and **M.D.** one year later still, provided that the requisite courses are fulfilled and examinations passed. *Licentiates* and *Masters in Surgery* are also degrees granted by this University. These do not necessarily require that all the examinations for M.B. shall be passed.

The University of Edinburgh confers the degrees of **M.B., C.M.,** and **M.D.** The first must be passed before either of the others are granted. For the M.B. and C.M. degrees a course of four years, at least, of medical and surgical study is required, and each candidate is examined both in writing and *vivâ voce*—1st, on Chemistry, Botany, and Natural History; 2nd, on Anatomy, Institutes of Medicine, Materia Medica, including Practical Pharmacy and Pathology; 3rd, on Surgery, Practice of Medicine, Midwifery, and Medical Jurisprudence; 4th, clinically on Medicine and on Surgery in a hospital. For the M.D. degree two years of medical and surgical practice must elapse, the candidate must be a graduate in Arts, and must submit a thesis composed by himself on any branch of knowledge comprised in the professional examinations for the M.B. degree.

The University of Glasgow grants the same degrees, and provides curricula and examinations similar to those of the University of Edinburgh.

The same may be said of the **University of Aberdeen.**

Also of the **University of St. Andrew's**; except that by the latter the degree of Doctor in Medicine may be conferred on any registered medical practitioner above the age of forty years whose professional position and experience are such as, in the estimation of the University, to entitle him to that degree, and who shall, on examination, satisfy the medical examiners of the sufficiency of his professional knowledge; provided always, that degrees shall not be conferred, under this section, to a greater number than ten in any one year.

The University of Dublin (Trinity College) grants the degrees of **M.B., M.D,** and **M.Ch.,** and also licenses in medicine **(L.M.)** and surgery **(L.S.).** To take the degree of M.B. it is required that the candidate shall also take that of B.A., and shall have attended hospital and lectures for four years. The M.D. degree is granted to an M.B. of three years' standing, who must perform exercises before the Regius Professor of Physic. The degree of M.Ch. demands a curriculum somewhat different from, though of the same length of time, as that required for the M.B. examination. A licentiate in medicine or surgery has passed the medical course and examinations required for M.B. or M.Ch. respectively, but the fees are somewhat lower. He can, however, afterwards take up his degree.

The Queen's University of Ireland comprises the Queen's Colleges of Belfast, Cork, and Galway, each of which possesses a Faculty of Medicine. The degrees of **M.D.** and **M.Ch.** are granted by this University. The curriculum for either extends over four years, and comprehends the usual subjects.

Besides the foregoing Universities, the following Corporations grant licenses to practise:—

The Royal College of Physicians, London. There are Licentiates, Members, and Fellows of the Royal College of Physicians, London. The licentiates have passed a Preliminary Examination in Arts, and two other professional examinations, besides giving evidence of at least four years of professional education as a registered medical student. The fee is fifteen guineas. The course of study previous to the examination for membership is almost similar to that prescribed for the licentiates. Members may also be admitted, after a certain examination, who have taken the degree of M.B. at other universities. The fee is thirty guineas. The members of the College are eligible for Fellowship.

The Royal College of Surgeons of England. To become a member the following course is prescribed. Preliminary Examination:—Students can pass this at the College. Fee 2*l.* Certain certificates, as for instance, that of the Middle Class Examinations (Senior), are accepted in lieu of this examination, provided such include Latin and Mathematics. The Professional Education must comprise four years of study subsequent to the preliminary examination, and include certain attendances at lectures and hospital practice. The fee is 22*l.* For Fellowship the curriculum is longer, the examinations more severe, and the fees higher. Or a member of eight years' standing may offer himself for the final examination for the Fellowship. The Royal College of Surgeons also grants certificates of qualification in midwifery and in dental surgery.

The Royal College of Physicians, Edinburgh, grants licenses in medicine. The fee here is ten guineas. The curriculum is very similar to that which has been described. Any licentiate of a College of Physicians, or graduate of a British or Irish University, with whose knowledge of medical and general science the College may be satisfied, may be admitted a member of the College, provided he shall have attained the age of twenty-four years. The fee to be paid by a member is 31*l.* 10*s.* When a licentiate is raised to the rank of member he pays 21*l.* When a member is raised to the rank of fellow the fee is 31*l.* 10*s.*, exclusive of stamp-duty, which amounts to 25*l.*

The Royal College of Surgeons, Edinburgh, also grants diplomas of membership. The fee here for the professional examination amounts to 10*l.*

The Royal College of Physicians of Edinburgh, and the **Royal College of Surgeons of Edinburgh,** while they still continue to give their diplomas separately, under separate regulations, have made arrangements by which, after one series of examinations, the student may obtain the diplomas of both colleges. The general principle of this joint examination is, that it shall be conducted by a board in which each body is represented in those branches which are common to both medicine and surgery; but that the College of Physicians shall take exclusive charge of the examination in medicine, and the College of Surgeons of the examination in surgery. The object of the joint examination is, to give to students facilities for obtaining from two separate bodies, and at less expense, a qualification in medicine and a qualification in surgery. Students passing that examination successfully will be enabled to register two qualifications under the Medical Act—Licentiate of the Royal College of Physicians of Edinburgh and Licentiate of the Royal College of Surgeons of Edinburgh.

The Faculty of Physicians and Surgeons of Glasgow also grant a diploma. The candidates follow a curriculum similar to that of the Edinburgh College of Surgeons. The fee for the preliminary examination is 10*s.*, and for the professional examinations 10*l.* In connection with the Royal College of Physicians of Edinburgh a double diploma is also granted. The fee for this, as for the similar double diploma in Edinburgh (professional examinations only), is 16*l.*

The King and Queen's College of Physicians in Ireland grants a license in medicine, and also a license in midwifery. A four-year's course of medical study is required, and a special additional examination for the midwifery qualification. The fee for the license in medicine, 15 guineas; for the midwifery diploma, 3 guineas; or, if both are taken out together, 16*l.*

The Royal College of Surgeons in Ireland grants *Letters Testimonial* and Fellowship. For the former a preliminary examination and the usual medical course is required, the total of the fees being 26*l.* 15*s.* For Fellowship the B.A. or an equivalent examination is demanded as preliminary, and a longer course of study. The fee is 47*l.* 5*s.* if the candidate intends to practise within ten miles of Dublin, or 36*l.* 15*s.* otherwise.

The Society of Apothecaries, London, grants a certificate of qualification to practise as an Apothecary, and requires that the candidate shall produce testimonials of having passed a

Preliminary Examination in Arts, as a test of general education. Of having served an apprenticeship or pupilage of not less than five years to a practitioner qualified by the Act of 1815. This period may include the time spent in attending lectures and hospital practice. Of having attained the full age of twenty-one years. Of good moral conduct. And of having pursued a course of medical study in conformity with the regulations of the Court. The course of study includes three winter sessions and two summer sessions. The extent of the examinations is modified towards gentlemen holding the diplomas of other examining bodies. The Society also grants a certificate of qualification to act as an assistant, the examination comprising the following subjects:—In translating physicians' prescriptions in the British Pharmacopœia; in Pharmacy, Pharmaceutical Chemistry, and Materia Medica. *Fees.*—For a certificate of qualification to practise, six guineas, the half to be paid at the first examination; for an assistant's certificate, two guineas.

The Apothecaries' Hall of Ireland. *Professional Education and Examination.*—Every candidate for the license to practise must produce certificates to the following effect:—1. Of having passed an examination in Arts, previously to entering on professional study. 2. Of being registered as a Student in Medicine. 3. Of being at least twenty-one years of age, and of good moral character. 4. Of apprenticeship to a qualified apothecary, or of having been engaged in Practical Pharmacy with an apothecary for three years subsequently to having passed the examination in Arts. 5. Of having spent four years in professional study. 6. Of having attended the following courses—viz., Chemistry, during one winter session; Anatomy and Physiology, during two winter sessions; Demonstrations and Dissections, during two winter sessions; Botany and Natural History, during one summer session; Practical Pharmacy and Practical Chemistry (in a recognised laboratory), each during three months; Principles and Practice of Medicine and Therapeutics, during one winter session; Midwifery and Diseases of Women and Children, during six months; Practical Midwifery at a recognised hospital (attendance upon twenty cases); Surgery, during one winter session; Medical Jurisprudence, during one summer session; instruction in the practice of Vaccination. 7. Of having attended at a recognised hospital or hospitals the Practice of Medicine and Clinical Lectures on Medicine, during two winter and two summer sessions; also the Practice of Surgery and Clinical Lectures on Surgery during one winter and one summer session. The examinations are divided into two parts, the first part comprehending Chemistry, Botany, Anatomy, Physiology, and Pharmacy; the second, Medicine, Therapeutics, Surgery, Pathology, Midwifery, Forensic Medicine, and Hygiene.

Candidates for the certificate of Assistant to an Apothecary in Ireland, in compounding and dispensing medicine, are examined in the British Pharmacopœia and in Pharmacy, scientific and practical, including the history, characters, and qualities of medicines, with their preparations and doses, and in the translation of Latin prescriptions. Neither the Arts certificate nor the certificate of Apprentice is required for the examination of Assistant.

DENTAL DIPLOMAS.

The Royal College of Surgeons grants a diploma in dental surgery (L.D.S.), which may be taken apart from the Diploma of Member of the College of Surgeons. The preliminary examination is not stipulated for, but candidates must produce Certificates:—

1. Of being twenty-one years of age.
2. Of having been engaged during four years in the acquirement of professional knowledge.
3. Of having attended, at a School or Schools recognised by this College, not less than one of each of the following Courses of Lectures, delivered by Lecturers recognised by this College, namely:—Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica.
4. Of having attended a second Winter Course of Lectures on Anatomy, or a course of not less than twenty Lectures on the anatomy of the Head and Neck, delivered by Lecturers recognised by this College.
5. Of having performed Dissections at a recognised School during not less than nine months.
6. Of having completed a course of Chemical Manipulation, under the superintendence of a Teacher or Lecturer recognised by this College.
7. Of having attended at a recognised Hospital or Hospitals in the United Kingdom the Practice of Surgery and Clinical Lectures on Surgery during two winter sessions.
8. Of having attended at a recognised School two Courses of Lectures upon each of the following subjects, viz.:—Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one Course of Lectures on Metallurgy, by Lecturers recognised by this College.
9. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner.
10. Of having attended at a recognised Dental Hospital, or in the Dental department of a recognised general Hospital, the practice of Dental Surgery during the period of two years.

N.B.—The Students of the London Schools are required to register the above Certificates at this College; and special Returns will be required from the Provincial Schools.

Examination. — The examination is partly written and partly oral.

The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with especial reference to the practice of the Dental profession.

The oral practical examination comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c.

Members of the College, in the written examination, will only have to answer those questions set by the Section of the Board, consisting of persons skilled in Dental Surgery; and in the oral examination will be examined only by that Section.

A candidate whose qualifications shall be found insufficient will be referred back to his studies, and will not be admitted to re-examination within the period of six months, unless the Board shall otherwise determine.

Examinations will be held in January and June.

The fee for the Diploma is ten guineas, over and above any stamp duty.

MEDICAL EDUCATION.

After passing his Preliminary Examination at the College of Surgeons, or the Apothecaries' Hall, or producing a certificate of having passed the Oxford, Cambridge, or Durham middle class examinations (senior), if Latin and mathematics have been included, or producing certificates of other examinations recognised by the Medical Council, the student is at liberty to register. He must then pass four years in professional study. Of these four years it is required by the College of Physicians, and College of Surgeons, that at least two and a-half years should have been passed at a hospital medical school. Of course the whole of the four years may have been so occupied, or the other eighteen months may be passed with a qualified medical practitioner, who, holding one or more public appointments, can afford him "such opportunities of practical instruction as shall be satisfactory" to the various examining boards. Most of the hospital medical schools have also scholarships attached, which are open for competition among students.

SUGGESTIONS RELATING TO THE EDUCATION OF MEDICAL STUDENTS.*

In the case of an intending student of medicine, it is necessary for him to bear in mind that there are many corporate bodies which have the power of granting legal qualifications to practise. It is of the greatest importance that, at the very outset of his curriculum, he should select for himself the qualifications which he intends to take; in other words, that he should make up his mind to which of the corporate bodies he proposes offering himself for examination. This is due to the fact that, as things are at present, the standard of examination at these different bodies varies considerably, and so also does the amount of attendance upon medical classes demanded by them. While some of them require that the student shall spend a certain number of his four years of study at their particular schools, others allow him to follow out his whole curriculum at any recognised school he may choose to fix upon. The corporate bodies alluded to are divisible into two classes, viz., Universities and Licensing Bodies. (*a*) Universities alone are entitled to grant degrees such as those of M.B. (*Bachelor of Medicine*), M.C. or M.S. (*Master of Surgery*), and M.D. (*Doctor of Medicine*). As the present remarks apply only to the British schools, and do not include those in Ireland, the principal universities granting medical degrees may be said to be those of Oxford, Cambridge, London, Edinburgh, Glasgow, and Aberdeen, and all of them, except the University of London, require that the student shall spend so much of his period of study at their respective schools. With regard to the Royal Infirmary School of Medicine in this town (which it must be borne in mind, like all the other provincial and metropolitan schools attached to hospitals, is merely a teaching institution, and has no power whatever to grant licenses to practise), it is found practically that those students who wish to possess a university degree take either that of London or of Edinburgh. The examinations for them (and especially for the London University) are very rigid, and the amount of classes required, and consequently the expense of the curriculum, is greater than for any of the licensing bodies. (*b*) Licensing bodies grant diplomas (not degrees) either in medicine or in surgery. The chief of these are the Apothecaries' Society of London, the Royal Colleges of Physicians and of Surgeons in London and in Edinburgh, and the Glasgow Faculty of Physicians and Surgeons. The surgical qualification is obtained from the Colleges of Surgeons, and the medical from the Apothecaries' Society or Colleges of Physicians. The Glasgow Faculty of Physicians and Surgeons combines the two. The Edinburgh Colleges of Physicians and Surgeons may grant their diplomas separately, but in order to save the student trouble, they have agreed to combine their examinations and grant a double qualification; and it is not improbable that the London colleges will do so too, but meantime they are quite distinct, and demand separate examinations.

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* We are indebted for these useful hints to the prospectus issued by the Liverpool Royal Infirmary School of Medicine, which also gives many further details.

The student, having determined whether he wishes to obtain a university degree, or simply qualifications in medicine and surgery, must pass a preliminary examination on matters pertaining to general education before he begins any medical studies at all (unless he commenced his studies before October, 1861), inasmuch as his attendance at medical classes does not count until this preliminary examination has been passed. Every university and licensing body holds a preliminary examination, but there is no doubt that the Matriculation (or preliminary) Examination of the University of London, although the hardest, is by far the most useful to obtain, inasmuch as the student can then study specially for the London degrees, if he chooses, and is exempted from all preliminaries at other universities and licensing bodies (except Oxford), and also from any further preliminary in case he should desire to proceed to the *Fellowship* of the College of Surgeons. This examination is held twice a year in Liverpool, so that the student need not leave the town to pass it. If he does not pass the London Matriculation, but wishes to obtain the Edinburgh University degree, he must pass the preliminary of that university; while if he wishes to obtain the usual qualifications in medicine and surgery, it is comparatively a matter of indifference before which of the licensing bodies he appears, as the preliminary of any one of them franks all the others. The preliminary examinations most commonly resorted to are those of the London College of Surgeons, of the conjoined Colleges of Physicians and Surgeons of Edinburgh, of the Apothecaries' Society, and of the Glasgow Faculty of Physicians and Surgeons, or the Registration Examination for Medical Students of the University of Durham.

We give below the lecture staffs of a few of the medical schools, both London and provincial, and we also quote in each instance the aggregate fee (if paid in one sum) charged for the courses required by the College of Surgeons, Apothecaries' Hall, &c. In many cases fuller details may be found in our advertisement pages, or may be obtained from the secretaries.

CHARING CROSS HOSPITAL SCHOOL OF MEDICINE.

The introductory lecture will be delivered on Friday, October 1, at 4 P.M., by W. FAIRLIE CLARKE, Esq., M.A., F.R.C.S.

Aggregate fee, 78*l.* 5*s.*

LECTURERS.

Anatomy	Edward Bellamy, F.R.C.S.
Bandaging, &c	W. Fairlie Clarke, M.A., F.R.C.S.
Botany	J. Pearson Irvine, B.A., B.Sc., M.D.
Chemistry Practical Chemistry	C. W. Heaton, F.C.S. Demonstrator, T. Bolas, F.C.S.
Clinical Medicine	Alexander Silver, M.A., M.D.
Clinical Surgery	H. Hancock, F.R.C.S.
Comparative Anatomy	J. F. Blake, M.A.
Demonstrations and Dissections	J. Cantlie, M.A., M.B.
Dental Surgery	John Fairbank, M.R.C.S.
Diseases of Children	J. Pearson Irvine, B.A., B.Sc., M.D.
Forensic Medicine	G. Vivian Poore, M.D.
Materia Medica and Therapeutics	R. Douglas Powell, M.D., F.R.C.P.
Mental Diseases	W. J. Hunt, M.D.
Morbid Histology	J. Mitchell Bruce, M.A., M.D.
Operative Surgery	Edward Bellamy, F.R.C.S.
Pathology and Morbid Anatomy	T. Henry Green, M.D., F.R.C.P.
Physiology, Theoretical and Practical	Alexander Silver, M.A., M.D. J. Mitchell Bruce, M.A., M.D.
Practical Chemistry	C. W. Heaton, F.C.S.
Principles and Practice of Medicine	A. J. Pollock, M.D., F.R.C.P.
Principles and Practice of Midwifery and Diseases of Women	J. Watt Black, M.A., M.D.
Principles and Practice of Surgery	Edwin Canton, F.RC.S.
Public Health	C. W. Heaton, F.C.S. G. V. Poore, M.D. W. Eassie, C.E.
Skin Diseases	E. Sparks, M.A., M.B.
Surgical Pathology	J. Astley Bloxam, F.RC.S.

Francis Hird, F.R.C.S., Dean.
G. V. Poore, M.D., Sub-Dean.

KING'S COLLEGE, LONDON.

Introductory lecture on Friday, October 1, at 4 P.M., by Professor CURNOW, M.D.

Aggregate fee, 100*l.*

PROFESSORS.

Anatomy, Descriptive and Surgical	John Curnow, M.D.
Physiology Practical Physiology	Gerald F. Yeo, M.D.
Chemistry Practical Chemistry	C. L. Bloxam, F.C.S.
Medicine, Principles and Practice of	George Johnson, M.D., F.R.S.
Surgery, Principles and Practice of	John Wood, F.R.S.
Clinical Surgery	Sir William Fergusson, Bart., F.R.S.
Hygiene	W. A. Guy, M.B., F.R.S.
Botany	Robert Bentley, F.L.S.
Materia Medica and Therapeutics	E. B. Baxter, M.D.
Obstetric Medicine and the Diseases of Women and Children	W. Playfair, M.D.
Forensic Medicine	D. Ferrier, M.A., M.D.
Comparative Anatomy	A. H. Garrod, M.A.
Pathological Anatomy	L. S. Beale, M.B., F.R.S.
Dental Surgery	S. Hamilton Cartwright, M.R.C.S.
Ophthalmology	J. Soelberg Wells, M.D., F.R.C.S.
Psychological Medicine	Edgar Sheppard, M.D.

Dean of the Faculty, Professor Bentley, F.L.S.
Sub-dean and Medical Tutor, J. H. Philpot, B.M.

LONDON HOSPITAL MEDICAL COLLEGE.

Introductory address on Friday, October 1, at 3 P.M., by W. BATHURST WOODMAN, M.D.

Aggregate fee, 90 guineas.

LECTURERS.

Medicine	Herbert Davies, M.D., Cantab S. Fenwick, M.D.
Surgery	John Couper, F.R.C.S. Eng.
Descriptive and Surgical Anatomy	Walter Rivington, M.S. Lond.
Practical Anatomy	James Adams, F.R.C.S. Eng. H. A. Reeves, F.R.C.S. Ed.
Chemistry	Henry Letheby, M.B. Lond. C. Meymott Tidy, M.B.
Practical Chemistry	Henry Letheby, M.B. Lond.
Physiology and General Anatomy	J. McCarthy, M.B. Lond., F.R.C.S. Eng.
Practical Histology and Use of the Microscope	J. McCarthy, M.B. Lond., F.R.C.S. Eng.
Comparative Anatomy	E. B. Aveling, B. Sc.
Anatomy and Pathology of the Teeth	A. W. Barrett, M.B. Lond. M.R.C.S. Eng.
Midwifery and Diseases of Women	James Palfrey, M.D.
Ophthalmic Surgery	John Couper, F.R.C.S. Eng.
Forensic Medicine: Toxicology	J. E. D. Rodgers, M.R.C.S. Eng.
Do. Medical Jurisprudence and Public Health	C. Meymott Tidy, M.B.
Materia Medica and General Therapeutics	M. Prosser James, M.D.
Botany	John Gilbert Baker, F.L.S.
Special Operatic Surgery	C. F. Maunder, F.R.C.S. Eng.
Pathology and Demonstrations of Morbid Anatomy	H. G. Sutton, M.B. Lond.
Diseases of the Throat and Use of the Laryngoscope	Morell Mackenzie, M.D. Lond.

Dean of the College, Dr. Andrew Clark.
Vice-Dean of the College, Mr. Waren Tay.

THE MIDDLESEX HOSPITAL MEDICAL COLLEGE.

Introductory address, Friday, October 1, at 3 p.m., by Mr. B. THOMPSON LOWNE, F.R.C.S.

Aggregate fee, £90.

LECTURERS.

Medicine	Dr. Greenhow, F.R.S.
Surgery	Dr. De Morgan, F.R.S. Mr. Hulke, F.R.S.
Practical Surgery	Mr. Lawson Mr. Morris, M.A., M.B. Lond.

Physiology and General Anatomy....	Mr. B. Thompson Lowne
Descriptive and Surgical Anatomy..	Mr. Morris, M.A., M.B.
Chemistry	
Pathological Anatomy..............	Dr. Cayley
Diseases of Women and Children and Midwifery	Dr. J. Hall Davis Dr. Arthur Edis
Diseases of the Eye	Mr. Hulke, F.R.S.
Dissecting Room	Mr. Hensman
Materia Medica and Therapeutics ..	Dr. Thorowgood
Medical Jurisprudence	Dr. R. King, M.A. Cantab.
Botany..............................	Mr. Hensman
Practical Chemistry	
Public Health	Dr. G. H. Evans, M.A. Cantab.
Comparative Anatomy and Zoology	Mr. Hensman
Psychological Medicine	Dr. Henry Rayner
Practical Demonstrations on Diseases of the Skin........................	Dr. R. Liveing, M.A. Cantab.
Diseases of the Larynx and Ear	Mr. A. Clark

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL.

Introductory address on Friday, October 1, by Dr. BARNES, at 4 P.M., at the Hospital.

Aggregate fee, 100 guineas.

LECTURERS.

Clinical Medicine	Drs. Ogle and Dickinson Dr. Barclay.
Diseases of Women	Dr. Barnes
Clinical Surgery	Messrs. Pollard and Rouse Mr. H. Lee
Principles and Practice of Physic ..	Dr. Barclay
Principles and Practice of Surgery ..	Mr. Holmes
Pathology	Dr. Dickinson
Opththalmic Surgery	Mr. Brudenell Carter
Anatomy	Mr. Pick Dr. Cavafy
Physiological Chemistry............	Dr. Ralfe
Histology	Mr. Herbert Watney
Chemistry and Physics	Dr. Noad
Morbid Anatomy	Dr. R. J. Lee
Medical Jurisprudence	Dr. Wadham
Psychological Medicine	Dr. Blandford
Practical Surgery..................	Mr. Haward
Dental Surgery....................	Mr. Vasey
Aural Surgery	Mr. Dalby
Materia Medica....................	Dr. Dickinson
Botany............................	Dr. Whipham
Comparative Anatomy	Dr. Brailey
Diseases of the Skin..............	Dr. Whipham

ST. MARY'S HOSPITAL MEDICAL SCHOOL, PADDINGTON.

The introductory lecture by Dr. RANDALL, Friday, October 1, 1875, at 8 P.M., to be followed by a Conversazione in the School.

Aggregate fee, £84.

MEDICAL OFFICERS AND LECTURERS.

Consulting Officers	Dr. Chambers Sir James Alderson, M.D., F.R.S. Dr. Sibson, F.R.S. Mr. Coulson Mr. Lane Mr. White Cooper
Physicians	Dr. H. Jones, F.R.S. Dr. Sieveking Dr. Broadbent
Assistant Physicians	Dr. Cheadle Dr. Lawson Dr. Shepherd
Surgeons	Mr. Spencer Smith Mr. Haynes Walton Mr. J. R. Lane
Assistant Surgeons	Mr. Gascoyen Mr. Norton Mr. Edmund Owen
Physician-Accoucheur..............	Dr. Alfred Meadows
Assistant Physician-Accoucheur	Dr. Wiltshire
Surgeon in charge of the Ophthalmic Department	Mr. Haynes Walton
Aural Surgeon	Mr. G. Field
Surgeon-Dentist	Mr. Howard Hayward
Medical Tutor	Dr. Mahomed
Other Lecturers....................	Dr. Wright Dr. Randall Mr. Mivart, F.R.S. Dr. Trimen Dr. Farquharson

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

Introductory Address on October 1, at 3 P.M., by Dr. PAYNE.

Aggregate fee, £105.

LECTURERS.

Medicine	Dr. Peacock Dr. Murchison
Surgery	Mr. Sydney Jones Mr. MacCormac
General Pathology	Dr. Bristowe
Physiology and Practical Physiology	Dr. Ord Dr. John Harley
Descriptive Anatomy	Mr. Francis Mason Mr. W. W. Wagstaffe
Anatomical Demonstrations in the Dissecting Room	Dr. R. W. Reid
Special Anatomical and Microscopical Demonstrations..................	Mr. Rainey
Practical and Manipulative Surgery	Mr. Croft Mr. MacKellar
Chemistry and Practical Chemistry	Dr. A. J. Bernays
Midwifery	Dr. Gervis
Physics and Natural Philosophy....	Dr. Stone
Materia Medica	Dr. Payne
Forensic Medicine..................	Dr. Stone
Comparative Anatomy..............	Mr. C. Stewart
Ophthalmic Surgery................	Mr. Liebreich
Botany............................	Mr. A. W. Bennett
Dental Surgery	Mr. J. W. Elliott Mr. W. G. Ranger
Demonstrations of Morbid Anatomy	Dr. Greenfield
Lectures on Morbid Anatomy and Practical Pathology..............	Mr. H. Arnott Dr. Greenfield
Mental Diseases....................	Dr. Wm. Rhys Williams
Dean..............................	T. B. Peacock, M.D.
Medical Secretary..................	R. G. Whitfield

UNIVERSITY COLLEGE, LONDON.

Introductory lecture on Monday, October 4, at 3 P.M., by Professor CORFIELD, M.A., M.D.

Aggregate fee, 105*l*. 15*s*.

PROFESSORS.

Medicine	J. Russell Reynolds, M.D., F.R.S.
Physiology	Burdon Sanderson, M.D., F.R.S. Edward A. Schäfer
Chemistry	Prof. Williamson, Ph.D., F.R.S. C. Graham, D.Sc.
Anatomy..........................	G. Vince Ellis
Comparative Anatomy	Prof. Lankester, M.A., F.R.S.
Surgery	Prof. Marshall, F.R.S.
Practical Surgery..................	Berkeley Hill, M.B., F.R.C.S.
Dental Surgery	G. A. Ibbetson, F.R.C.S.
Botany............................	Prof. Oliver, F.R.S.
Midwifery	Graily Hewitt, M.D.
Pathological Anatomy	H. C. Bastian, M.A., M.D., F.R.S.
Medical Jurisprudence	Prof. Maudsley, M.D.
Materia Medica and Therapeutics ..	Sidney Ringer, M.D.
Mental Diseases....................	W. H. O. Sankey, M.D.
Ophthalmics	Wharton Jones, F.R.S.
Hygiene and Public Health	Prof. Corfield, M.A., M.D.

QUEEN'S COLLEGE, BIRMINGHAM.

FACULTY OF MEDICINE.

The introductory address will be delivered on October 1, by the Rev: W. H. POULTON, M.A., Warden.

Aggregate fee, 50 guineas.

PROFESSORS:

Medicine	Balthazar Foster, M.D., F.R.C.P.
Surgery	Oliver Pemberton, F.R.C.S. Ed. Furneaux Jordan, F.R.C.S.
Anatomy..........................	W. Thomas, M.B. Lond., F.R.C.S. R. Jolly, M.D., F.R.C.S. Edin.
Physiology	Richard Norris, M.D. T. H. Bartlett, M.B. Lond., F.R.C.S. E. Rickards, M.D. Oxon.
Chemistry	Alfred Hill, M.D., F.C.S.
Demonstrators of Anatomy	H. Campbell Pope, M.B. Lond. Bennett May, M.R.C.S.
Midwifery	John Clay, M.R.C.S. John Bassett, M.D.
Diseases of Women and Children....	Samuel Berry, F.R.C.S. R. C. R. Jordan, M.D. Lond.
Forensic Medicine..................	J. St. S. Wilders, M.R.C.S.
Toxicology	Alfred Hill, M.D., F.C.S.
Practical Chemistry	Alfred Anderson, F.C.S.
Botany	William Hinds, M.D., M.R.C.S.
Materia Medica and Therapeutics ..	Edward Mackey, M.D. Lond., M.R.C.P.
Ophthalmic Surgery................	J. Vose Solomon, F.R.C.S.
Dental Surgery....................	Thomas Howkins, M.R.C.S.
Comparative Anatomy	Thomas Savage, M.D., F.R.C.S.
Pathology	James Sawyer, M.D. Lond., M.R.C.P.
Registrar..........................	Robert Jolly, M.D., F.R.C.S. Edin.
Medical Tutor	H. Campbell Pope, M.B. Lond.

BRISTOL SCHOOL OF MEDICINE.

Aggregate fee, 55 guineas.

PROFESSORS.

Medicine..........................	Samuel Martyn, M.D., F.R.C.P. William H. Spencer, M.B.
Surgery and Practical Surgery......	Robert W. Coe, F.R.C.S. Robert W. Tibbits, M.B., M.R.C.S.
Anatomy	Edmund C. Board, L.R.C.P., M.R.C.S. Nelson C. Dobson, F.R.C.S.
Physiology	George F. Atchley, M.B., M.R.C.S. R. Shingleton Smith, M.D.
Chemistry	Thomas Coomber, F.C.S.
Midwifery	Joseph G. Swayne, M.D.
Medical Jurisprudence	William P. Keall, L.R.C.P. Ed., M.R.C.S.
Materia Medica and Therapeutics ..	George F. Burder, M.D., F.R.C.P.
Botany	Mr. Adolph Leipner
Pathological Anatomy	Samuel Martyn, M.D., F.R.C.P. William H. Spencer, M.B.
Comparative Anatomy	George F. Atchley, M.B., M.R.C.S.

⁂ Arrangements are in progress for the establishment in Bristol of a College of Science and Literature, of which the existing Medical School shall form a Department. They take the opportunity of commending the proposed Institution to the support of their professional or other friends, into whose hands this prospectus may fall.

SCHOOL OF MEDICINE, EDINBURGH.

The minimum cost of the Education in this School of Medicine for the double qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons, including the Fees for the joint examination, is 90*l*. 4*s*. which is payable by yearly instalments during the period of study; whilst the minimum cost for the single qualification of either Physician or Surgeon, including fee for examination, is 80*l*.

Inaugural address by Mr. Chiene on Monday, November 1. at 11 A.M.

Lecturers.

Anatomy	Dr. P. D. Handyside
Chemistry	Dr. Stevenson Macadam
Practical Chemistry	Mr. J. Falconer King
Materia Medica and Therapeutics	Dr. Francis W. Moinet
Surgery	Dr. P. H. Watson Mr. Joseph Bell Mr. Chiene Dr. John Duncan
Midwifery and Diseases of Women and Children	Dr. Matthews Duncan Dr. Keiller Dr. Angus Macdonald
Physiology	Dr. Bell Pettigrew Dr. McKendrick
Clinical Medicine	Dr. Rutherford Haldane Dr. George W. Balfour Dr. Grainger Stewart Dr. Matthew Duncan
Clinical Surgery	Dr. P. H. Watson Mr. Annandale
Medical Jurisprudence and Public Health	Dr. Littlejohn
General Pathology and Pathological Anatomy	Dr. John Wyllie
General Pathology and Pathological Anatomy	Dr. J. G. Sinclair Coghill
Practice of Physic	Dr. Rutherford Haldane Dr. Claud Muirhead Dr. Grainger Stewart
Vaccination (Six Weeks' Course, commencing November)	Dr. Husband
State Medicine and Hygiène	Dr. Andrew Smart
Diseases of the Eye	Dr. Argyll Robertson
Diseases of Children	Dr. Stephenson
Insanity	Dr. J. Batty Tuke

UNIVERSITY OF EDINBURGH.

The Session will be opened on Monday. November 1, 1875, at 2 P.M., when an address will be delivered by the Principal, Sir Alexander Grant, Bart., LL.D.

Faculty of Medicine.

Materia Medica	Prof. Sir Robert Christison, Bart., M.D.
Chemistry	Prof. Crum Brown, M.D.
Surgery	Prof. Spence
Institutes of Medicine or Physiology	Prof. Rutherford, M.D.
Midwifery and Diseases of Women and Children	Prof. Simpson, M.D.
Clinical Surgery (Mon. & Th.)	Prof. Lister, M.B.
Clinical Medicine (Mon., Th., Tu., & Fr.)	Profs. Laycock, Maclagan, and Sanders Prof. Simpson, on Diseases of Women
Anatomy	Prof. Turner, M.B.
Practice of Physic	Prof. Laycock, M.D.
General Pathology	Prof. Sanders, M.D.
Anatomical Demonstrations	Prof. Turner
Botany	Prof. Balfour, M.D.
Natural History	Prof. Wyville Thompson

UNIVERSITY OF GLASGOW.

Introductory discourse by Professor George Buchanan, M.D., on Tuesday, October 26.

Professors.

Clinical Medicine	Dr. M'Call Anderson Dr. Gairdner
Clinical Surgery	Dr. G. Buchanan Dr. Macleod
Chemistry	Mr. Ferguson
Materia Medica	Dr. Cowan
Anatomy, Junior	Dr. A. Thompson Demonstrators
Practice of Physic	Dr. Gairdner
Surgery	Dr. Macleod
Institutes of Medicine	Dr. A. Buchanan
Forensic Medicine	Dr. P. A. Simpson
Midwifery	Dr. Leishman
Pathology	Dr. J. Coats
Zoology	Dr. Young
Botany	Dr. A. Dickson
Practical Physiology	Dr. A. Buchanan Mr. W. J. Fleming
Lectures on the Eye	Dr. T. Reid

LEEDS SCHOOL OF MEDICINE.

Introductory address on Friday, October 1, at 4 P.M., by T. R. Jessop, Esq., F.R.C.S.

Lecturers.

Descriptive Anatomy	Robert T. Land, M.D., M.R.C.S. John A. Nunneley, M.B., M.R.C.S. Edmund Robinson, M.R.C.S.
Demonstrations of Anatomy	Edmund Robinson, M.R.C.S. A. F. McGill, F.R.C.S.
General Anatomy and Physiology	C. J. Wright, M.R.C.S. John Horsfall, M.A., F.R.C.S.
Practical Physiology	James Walker, M.R.C.S., L.R.C.P.
Chemistry (at the Yorkshire College of Science,	Professor T. E. Thorpe, Ph.D., F.R.S.E.
Botany	
Materia Medica	John Edwin Eddison, M.D.
Pathology	R. P. Oglesby, M.R.C.S.
Medicine	John D. Heaton, M.D., F.R.C.P. T. Clifford Allbutt, M.A., M.D., F.L.S.
Clinical Medicine	J. D. Heaton, M.D., F.R.C.P. T. Clifford Allbutt, M.A., M.D. John Edwin Eddison, M.D.
Surgery (including the Practical Course)	T. Pridgin Teale, M.A., F.R.C.S. T. R. Jessop, F.R.C.S. Edward Atkinson, M.R.C.S., F.L.S.
Clinical Surgery	C. G. Wheelhouse, F.R.C.S. T. P. Teale, M.A., F.R.C.S. T. R. Jessop, F.R.C.S. Edward Atkinson, M.R.C.S.
Midwifery	W. N. Price, M.R.C.S. James Braithwaite, M.D., M.R.C.S.
Forensic Medicine	Thomas Scattergood, M.R.C.S.
Mental Diseases	J. Crichton Browne, M.D., F.R.S.E.
Comparative Anatomy	T. C. Allbutt, M.A., M.D., F.L.S. Edward Atkinson, M.R.C.S., F.L.S.

LIVERPOOL SCHOOL OF MEDICINE.

Introductory lecture on Oct. 2, at 3 P.M., by Edw. H. Dickinson, M.A., M.B.

Aggregate fee, 45 guineas.

Lecturers.

Medicine	A. T. H. Waters, M.D.
Surgery	Reginald Harrison, F.R.C.S.
Physiology	Richard Caton, M.D.
Anatomy	W. Mitchell Banks, F.R.C.S.
Pathological Anatomy	A. Davidson, M.A., M.D.
Ophthalmic Medicine	T. Sbadford Walker, M.R.C.S.
Chemistry and Toxicology	J. C. Brown, D.Sc. (Lond.)
Obstetric Medicine and Gynæcology	A. B. Steele, L.K.Q.C.P.
Diseases of Children	R. Gee, M.D.
Materia Medica	J. B. Nevins, M.D.
Forensic Medicine	Ewing Whittle, M.D.
Botany	W. Carter, LL.B., M.B.
Comparative Anatomy	E. H. Dickenson, M.A., M.B.
Dental Surgery	J. Snape, L.D.S., R.C.S.
Dental Mechanics	R. E. Stewart, L.D.S., R.C.S.

Demonstrators.

Histology and Practical Physiology	Rushton Parker, M.B., F.R.C.S.
Practical Anatomy	Henry Ashby, M.B.

THE OWENS COLLEGE (MANCHESTER ROYAL) SCHOOL OF MEDICINE.

Introductory address by Edward Lund, Esq., F.R.C.S., on Monday, October 4, 1875, at 4 P.M.

Aggregate fee, 48*l*.

Professors and Lecturers.

Physiology	Prof. Arthur Gamgee, M.D., F.R.S.
Anatomy, Descriptive and Practical	Prof. Morrison Watson, M.D., F.R.S.E.
Comparative Anatomy	Prof. W. C. Williamson, F.R.S.
Chemistry	Prof. Henry E. Roscoe, B.A., Ph.D., F.R.S.
Organic Chemistry	Prof. C. Schorlemmer, F.R.S.
Clinical Medicine	Prof. William Roberts, M.D., F.R.C.P.
Principles and Practice of Medicine	Prof. J. E. Morgan, M.D., M.A. (Oxon.), F.R.C.P.
Principles and Practice of Surgery	Prof. George Southam, F.R.C.S. Prof. Edward Lund, F.R.C.S.
General Pathology and Morbid Anatomy	Henry Simpson, M.D. (Lond.) Julius Dreschfeld, M.D.
Hospital Instruction	The Physicians and Surgeons to the Royal Infirmary
Midwifery and Diseases of Women and Children	John Thorburn, M.D.
Materia Medica and Therapeutics	Alexander Somers, M.R.C.S. Daniel John Leech, M.B. (Lond.)
Forensic Medicine	G. Morley Harrison, M.R.C.S.
Ophthalmolgy	Thomas Windsor, M.R.C.S.
Botany	Prof. W. C. Williamson, F.R.S.
Hygiene and Public Health	Arthur Ransome, M.D., M.A. (Cantab.)

Professor Gamgee, M.D., F.R.S., Dean of the Medical School.

J. Beswick Perrin, M.R.C.S., F.L.S., Medical Tutor and Demonstrator of Anatomy.

J. Holme Nicholson, Registrar.

SHEFFIELD SCHOOL OF MEDICINE.

Introductory address by Dr. John Young.

Aggregate fee, 40 guineas.

Lecturers.

Anatomy, Descriptive and Surgical	Mr. Skinner Mr. E. Skinner
Demonstrations of Anatomy	Dr. T. H. Morton Dr. E. Thomas Mr. O. Barber
Physiology	Mr. S. Morton Dr. O'Keefe
Principles and Practice of Medicine	Dr. De Bartolome Dr. Hall
Principles and Practice of Surgery	Mr. W. F. Favell Mr. Parker, F.R.C.S. Mr. A. Jackson
Chemistry	Mr. Allen

Dental Mechanics	Mr. G. Mosely
Practical Physiology	Dr. W. R. Thomas
Midwifery and Diseases of Women	Dr. Hime
Materia Medica and Therapeutics	Dr. Young
Medical Jurisprudence and Toxicology	Mr. Baker Mr. Harrison
Botany	Mr. Birks
Dental Surgery	Dr. Merryweather
Comparative Anatomy	Mr. W. Jackson
Demonstrations of Pathology and Microscopy	The House Surgeon of the Infirmary
Demonstrations of Operative Surgery	Mr. Favell Mr. Parker, F.R.C.S.

VETERINARY EDUCATION.

The session of the Royal Veterinary College, Camden Town, London, will commence on October 1, at 1 P.M., when Professor SIMONDS will deliver an inaugural address. The course of lectures at this institution comprises:—Pathology of the Horse and other domesticated animals, including Epizootics, Parasites, and Parasitic Diseases; also on Materia Medica, Toxicology, Botany, Therapeutics, and Pharmacy, Hospital Practice, Obstetrics, Operative Surgery, the Principles and Practice of Shoeing, &c.

Students are required to attend one Summer and two Winter Sessions, at least, before being eligible for examination for the diploma of the Royal College of Veterinary Surgeons.

The general fee for the lectures, exclusive of Practical Chemistry, is 25*l.*

THE NEW VETERINARY COLLEGE, GAYFIELD, EDINBURGH.

Introductory address on Wednesday, October 27, at 2 P.M., by Principal WILLIAMS.

PROFESSORS.

Veterinary Medicine and Surgery	Prof. Williams, F.R.S.E., M.R.C.V.S.
Anatomy	Prof. Vaughan, F.L.S., M.R.C.V.S.
Physiology	Prof. Young, M.D.
Chemistry and Toxicology	Dr. Stevenson Macadam, F.R.S.E.
Materia Medica, Therapeutics, and Practical Pharmacy	Prof. Johnstone, M.R.C.V.S.
Clinical Medicine and Surgery	The Principal, assisted by Mr. Johnstone

SCIENTIFIC EDUCATION.

ROYAL SCHOOL OF MINES,

JERMYN STREET, S.W.

The following courses are provided:—

Chemistry	E. Frankland, Ph.D., F.R.S.
Metallurgy	John Percy, M.D., F.R.S.
Natural History	T. H. Huxley, LL.D., F.R.S.
Mineralogy Mining	Warington W. Smyth, M.A., F.R.S.
Geology	A. C. Ramsay, LL.D., F.R.S.
Applied Mechanics	T. M. Goodeve, M.A.
Physics	Frederick Guthrie, Ph.D., F.R.S.
Mechanical Drawing	Rev. J. H. Edgar, M.A.

The Lecture Fees for Students desirous of becoming Associates are 30*l.* in one sum, on entrance, or two annual payments of 20*l.*, exclusive of the Laboratories.

Tickets to separate Courses of Lectures are issued at 3*l.* and 4*l.* each.

ROYAL COLLEGE OF SCIENCE, DUBLIN.

The following courses are provided:—

PROFESSORS.

Chemistry (Theoretical and Practical), Metallurgy, &c.	Prof. Galloway, F.C.S.
Mathematics, Mechanics, and Mechanism	Prof. Hennessy, F.R.S.
Drawing, Engineering, and Surveying	Prof. Pigot, C.E., M.R.I.A.
Experimental Physics	Prof. Barrett, F.R.S.E., F.C.S.
Geology	Prof. Hull, M.A., F.R.S.
Mining and Mineralogy	Prof. O'Reilly, C.E., M.R.I.A.
Agriculture	Prof. Davy. M.D., M.R.I.A.
Botany	Prof. McNab, M.D.
Zoology	Prof. Leith Adams, M.B., F.R.S.

THE YORKSHIRE COLLEGE OF SCIENCE, LEEDS.

The session will be inaugurated on October 6, His Grace the DUKE OF DEVONSHIRE presiding.

The following are the Professors at this Institution:—

Mathematics and Experimental Physics	Prof. A. W. Rücker, M.A.
Chemistry	Prof. T. E. Thorpe, Ph.D., F.R.S.E., F.C.S.
Geology and Mining	Prof. A. H. Green, M.A., F.G.S.
Biology	L. C. Miall, F.G.S.
Textile Industries	John Beaumont

Besides the usual laboratory and lecture courses, evening classes are provided at very moderate fees in each of the above subjects.

Hon. Sec., RICHARD REYNOLDS, F.C.S.

PEPPERMINT.

THE peppermint that clothes the fields and scents the lanes in the parishes of Mitcham and Carshalton, although an indigenous plant in England, is not supposed to have been generally used until the middle of the last century, and afterwards, upon the recommendation of the English herbalists, it was introduced into Germany, where it has since been employed in medicine. The experience of one hundred years has not detracted from the acknowledged excellence of the qualities of the plant, but has completely established its hold upon the tastes of all classes of the population, both high and low, There is said to be nothing new under the sun, and this adage is confirmed by all our discoveries amid the buried and mouldering antiquities of the past. It is not, therefore, any subject for surprise that amongst the classical authors we should meet with references to the peppermint. That universal naturalist Pliny has not allowed this herb to escape his attention, for he mentions in one of his books that it is not possible for a stranger to pay a visit in the country to a husbandman and there to partake, as no doubt he often did himself whilst upon his botanising excursions, of the frugal fare offered without discovering that all meats from one end to the other of the table were seasoned with mint. He also tells us of the uses to which this plant was put in the dairies, where, being placed in the milk, it prevented the same from curding or turning sour, and this quality might be easily tested at the present day. It appears that Ovid, who was another lover of nature and depicter of rural scenes, in his story of Baucis and Philemon mentions that the rustics perfumed or scoured their tables with this herb before they sat down to supper. In these lines he says:—

> Then rubbed it o'er with newly gather'd mint,
> A wholesome herb, that breathed a grateful scent.

There are three different species; peppermint, spear mint or mintha mint, and penny royal, all cultivated in a similar manner. The mode of propagation is from young plants which spring from runners. Early in the spring, during the months of April and May, the plants are drawn and placed in rows, the space between varying according to the custom of each grower from one foot to eighteen inches. One of the most experienced growers at Mitcham adopts the latter distance, which he finds more favourable to the strong and healthy growth of the plant. By placing them closer, although a larger number are contained upon an acre of land, the amount of produce is diminished by the crowding. The opportunity of showery weather should be taken to place the cuttings, each five or six inches in length, about half way into the earth. The first season they require to be constantly attended to during the weeding time, and should receive six or more hoeings, which essential part of the cultivation should be scrupulously attended to every succeeding year, otherwise the quality of the oil would be injured in the distilling process. In the months of October, November, and December the beds are trenched like asparagus, the earth being piled up between the trenches to the width of three or four feet, and of sufficient depth to protect the roots during winter. The fields are ploughed up and changed every five years, the first crop being generally the most abundant and the purest. The qualities of soils best suited are moist and loamy, and the effect produced by the soil is more striking in the case of peppermint than in any other plant. Two crops of peppermint standing side by side indicate when distilled considerable difference in the yield of oil; and the larger quantity is not unfrequently obtained from that crop which presented the least promising appearance. It has been remarked by many growers both at Carshalton and Mitcham that peppermint plants raised at the latter place and laid out at the former, although an adjacent parish, yield a very different product when distilled, both in the aroma of the oil and the quantity obtained.

At Mitcham, which is the original seat of the cultivation, most growers supply large, but evidently insufficient, quantities of manure to their land; as the yield is continually diminishing, others plant potatoes after peppermint, then renow the soil with manure, and again plant peppermint. For some reasons, however, the production is considerably reduced, although a walk of several miles around the neighbourhood, embracing Sutton, Bumstead, Wallington, and Beddington, will show that the peppermint and the lavender are peeping out in many places that were formerly occupied by ordinary agriculture. Within our knowledge persons have been obliged to give up their residence at Wallington, where, during certain months, the air has been found to be oppressive and unbearable in consequence of the perfume of the surrounding fields. The reverse has taken place at Mitcham, for, as we were informed, a large farm, consisting of more than a thousand acres, which was a few years ago laid out with lavender, peppermint, roses, camomile, &c., is now wholly employed for the production of the cereal crops, and the majority of growers, rather than incur the risk of this description of farming, prefer to lay out their land with culinary vegetables. The uncertainty of the seasons in England, and the introduction of foreign produce, are alleged as the causes of this change, but we should rather attribute it to some fault in the cultivation, or else that the has been exhausted of certain of its chemical properties. There is scarcely any prettier or more charming sight to be witnessed than an August morning or afternoon, when the sun is shining brightly upon the golden fields of wheat interspersed amongst the varied purple colours of the lavender, the sombre hues of the peppermint, and the sparkling brilliancy of the white camomile flower. Any person who wishes to satisfy his curiosity can easily do so by taking the rail to Wallington, Sutton, or Mitcham. At either place he cannot fail to be amply requited for the trouble and trifling expense incurred by such a short and accessible excursion from the metropolis.

The harvesting takes place during the months of July and August, according to the propitious character or otherwise of the season. The produce varies from four to six tons per acre, the average being five tons, but the amount of oil yielded bears no definite relation to the quantity of the plant. When the summer has proved wet and cold, the plants, although bulky, have been known to produce only a small proportion of oil, and in other years, when the season has been warm and dry, the reverse has been the case, and small plants have yielded a double quantity of the oil. The spearmint produces about half as much as the peppermint, and it is therefore grown only in sufficient quantity to meet the actual demand, and in the absence of orders beforehand, the ground is otherwise appropriated. A native of this country, it may be seen growing wild in marshy places and around ponds; it has a strong aromatic odour, with a warm and slightly bitter taste, which is less pungent, but more agreeable than that of peppermint. The oil of spearmint, which is of a pale yellow or greenish colour when fresh, becomes darker with age, and ultimately of a mahogany colour, and is used for the same purpose as the peppermint. In the spring the young leaves and tops are used with salads, or mixed with certain dishes, such as peas, &c., or made to flavour soups. Penny royal is the least valuable of the three species of mint. This plant was formerly called "pudding grass," from the old custom of using it in hog puddings, also "run by the ground" and "lurk in the ditch," from its creeping nature and preference for damp soils. How its name became converted is not known, but great quantities are said to have been brought to market from a common near London, called Mile's End, in the time of Queen Elizabeth.

The peppermint plant is generally cut about the latter part of August, and placed in small cocks like those of hay, which are allowed to stand in the fields some days before being taken in for distillation. At the beginning of the present century there were no stills at Mitcham, and the herb was sold fresh. Since then many of these buildings have been erected both at Mitcham and Wallington, where the smoke from the chimneys may be seen during the harvest season. Messrs. Piesse & Lubin, the celebrated perfumers, of Bond Street, have a distillery upon the high road to Mitcham, where the process may be witnessed upon an introduction to the firm. The whole apparatus is exceedingly simple. It consists of a boiler for raising steam, a still made of wood for receiving the charges of peppermint, a cooler for cooling the oil, and a receiver into which it flows. The plants are packed into the wooden still and trampled down with the feet; when a full charge is thus ready, the lid of the still is put on and steam admitted at the bottom by a pipe from the boiler. When the peppermint is heated to about 212° Fahr. the essential oil passes over with the steam into a worm, which is placed in a cooler, and as it condenses into oil and water, it then passes out of the worm into a converted receiver, where the oil as it floats on the surface is lifted out with dippers, is then placed in tin cans, and becomes ready for sale. The refuse mint taken from the still is placed in piles, dried, and then makes tolerable fodder for sheep. The consumption in this country, as may be supposed, is very considerable, for as many as 12,000 lbs. of the oil are imported from abroad; the quality of the English-grown is, however, so superior that a large export likewise takes place. At the great French Exhibition of Industry, held at Paris in 1855, which might be regarded as a crucial test, in competition with such excellent perfumers as the French manufacturers are known to be, the oil prepared in this country was considered the best then exhibited.

There has lately been a new kind of crystallised peppermint oil introduced from Japan, but it is not known at present from which plant this oil is obtained; but it is not greatly inferior in point of fragrance to the best Mitcham oil, and were a demand first to arise in this country from the confectioners and others, there is little doubt that it could be supplied at a lower price.

Scientific Notes from Foreign Sources.

SUPPOSITORIES.

In the *Repertoire de Pharmacie* are the following remarks on the preparation of suppositories. The preparation of suppositories containing a quantity of an extract is somewhat tedious and sometimes difficult. To facilitate this operation the extract, after being attenuated with a very little water, if that is necessary, is incorporated with a little lard, precisely as if for pomade; then, to improve the consistency of the product, twice as much white wax as lard is added. The cacao butter and wax forming the basis of the preparation are fused together in a porcelain capsule, and the extract as above treated is incorporated with the mixture, a very gentle heat being maintained throughout the operation. The product is then run in the usual manner. By this process suppositories may be prepared containing 1 gramme of extract of rhatany:—

	Grammes
Extract of rhatany	1
Hot water (as little as possible)	
Lard	1
White wax	2
Cacao butter	1·5

For belladonna suppositories, in which the proportion of extract is much smaller, the following proportions may be adopted:—

	Grammes
Extract of belladonna	0·01
Lard	0·5
White wax	1
Cacao butter	3

PENCILS OF SULPHATE OF COPPER.

According to M. Steffen, in *Archiv. der Pharm.*, pencils of sulphate of copper 1 millimetre in diameter and 20 millimetres long may be prepared by heating the coarsely powdered salt in a porcelain capsule without agitation, until the particles begin to adhere. Cylinders may be formed from the mass while in this state at will. Alum or a mixture of it with copper sulphate may be worked similarly.

ADULTERATION OF OIL OF CLOVES.

In a note bearing the above title M. Jacquemin * calls attention to the adulteration in Germany of oil of cloves with phenol. In 1870, M. Fluckiger gave a process for detecting this fraud, which consists in agitating 2 to 10 grammes of the suspected oil with 50 or 100 volumes of hot water, decanting the aqueous liquid when cool, and after concentrating by gentle heat to a few cubic centimetres, adding a drop of ammonia and a minute portion of chlorinated lime. If phenol be present the agitated liquid assumes a green, and afterwards a blue colour, which remains for some days. The pure oil does not give any colouration by this treatment. M. Jacquemin objects to this process that it requires a somewhat large quantity of a costly article, and is unnecessarily complicated. He recommends that a fraction of a drop of aniline be added to a single drop of the oil, which is afterwards agitated with 5 or 6 c.c. of distilled water. Some drops of solution of hypochlorite of sodium are then carefully placed on the surface of the liquid. If phenol be absent, a colouration due to aniline alone is produced, that is, a purple violet tint, which soon disappears; whilst ever so little phenol gives rise to a beautiful blue colouration which remains for some minutes. It is important not to agitate after addition of the hypochlorite. M. Jacquemin's experiments show that oil of cloves adulterated with 5 per cent. of phenol gives a strong colouration, and even one drop of oil containing only 1 per cent. of phenol yields a decided blue colour. The process leaves nothing to be desired, either in sensitiveness or facility of application.

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* *Journ. de Pharm. et de Chimie*, August, 1875, p. 100.

PHOSPHORUS PILLS.

In the *Amer. Journ. of Pharm.*, H. Walling gives a formula for the preparation of phosphorus pills, which runs as follows:—Ol. cacao, 300 grains; sapo. Cast. pulv., 200 grains; phosphorus, 25 grains; F. pil. No. 500. The cacao butter is melted and strongly agitated in a glass vessel with the phosphorus; the soap is then added, and the agitation continued until the mass of phosphorus has quite disappeared: this takes place at about the temperature of the body. The pills thus made should be coated with a mixture of finely-powdered chalk and mucilage. Each pill contains $\frac{1}{20}$th of a grain of phosphorus.

TO BLEACH SPONGE.

A writer in *Œsten. Zeitschrift f. Pharm.* objects to the use of sulphurous or chlorine gas for bleaching sponges, on the ground that they are prejudicial to the operator and his surroundings. In preference, the sponge should first be soaked in hydrochloric acid to remove chalk, then washed out with water and steeped for five or ten minutes in a 2 per cent. solution of potassium or sodium permanganate in water. A deposit of manganese oxide imparts a deep brown colour, which is removed by steeping for one or two minutes in an aqueous solution of oxalic acid (2 per cent.) to which a little diluted sulphuric acid has been added. The sponge rapidly whitens, and is finally well washed out with water. A beautifully bleached sponge may be got without any injury to its texture by steeping the manganese browned article in very dilute sulphuric acid and repeatedly squeezing out. The operation may be conducted anywhere without injury to health.

LONDON BANKRUPTCY COURT.

(REPORTED FOR "THE CHEMIST AND DRUGGIST.")

Randal Cresswell, Sponge Merchant, 32 Red Lion Square.

The debtor had petitioned for the liquidation of his affairs by arrangement or composition, and at the meeting of creditors held on August 23 accounts were submitted showing total unsecured debts, 8,827*l.* 19*s.* 5*d.*, security being also held to the extent of 3,350*l.* 1*s.* 8*d.*, against assets, 1,731*l.* 17*s.*, consisting of stock, book debts, and furniture. The following were returned in the list of unsecured creditors:—

	£	s.	d.
E. Brown, Nassau, New Providence	1,550	6	3
Samuel Harris, 56 Mansell Street	570	16	4
C. Tavernier, Rue Neuve des Capucines, Paris	500	0	0
C. Rondeaux, Asnières, près Paris	450	0	0
M. N. Rothschild & Sons, St. Swithin's Lane	349	6	0
W. Thorpe, 22 Cité Trevise, Paris	219	0	0
Sibon et Crozat, Rue Thevenot, Paris	198	0	0
T. Blaxall, 70 Lamb's Conduit Street	148	13	0
J. Terry, 13 King Street, Cheapside	107	7	8
Dudgeon & Brown, Finsbury	100	0	0
Tressens et Cie., Paris	72	0	0
E. Caillet, 12 Rue Thevenot, Paris	62	16	0
G. & J. W. Taylor, 7 Little James Street	52	2	0
E. Lazard, 20 King's Arms Yard	44	19	9
Burgess, Willows, & Francis, 101 High Holborn	26	17	7
F. Bradshaw, 14 Clements Lane	25	0	0
E. Halse, 44A Cannon Street	15	8	0
E. J. Fricker, 44 Castle Street, Holborn	15	2	6
W. Stephens, 14 Clements Lane	14	4	0

At the meeting of creditors it was resolved that the estate should be liquidated by arrangement, with Mr. G. W. Challis, accountant, 12 Clements Lane, as trustee; and on the case coming before the Court on the 7th inst. Mr. Registrar Roche, on the application of Mr. Terry, allowed the resolutions to be registered.

REVIEWS
AND
Literary Notes.

ELEMENTARY CHEMICAL INSTRUCTION.

Mr. A. G. Vernon Harcourt, as President of the Chemical Section of the British Association, made some excellent remarks at Bristol on the advantage of early instruction in science. While regretting the small proportion of original work in chemistry in Great Britain, he said that it was not because our own workers were less inventive or industrious than their foreign brethren, but because their numbers were so small. Due allowance must be made for individual aptitude and inclination, but the chief reason why persons of leisure seldom turned their attention to scientific pursuits was that up to the present date few boys and young women had had experience of the pleasure that such pursuits afford. This was but the formal expression of the popular opinion on the matter, and the interest taken in the cultivation of the study of nature, an interest which increases daily, is a distinctive sign of the spirit of the age. To meet the requirements of this healthy reaction from the sole worship of classical teaching a new literature has arisen, and we have elementary text-books in profusion: some good, some bad, all marvellously cheap, and a few admirable in every respect. If the youth of our day do not turn out intelligent chemists, it will not be the fault of many successful and conscientious writers.

In addition to those elementary treatises which have been reviewed already during the past year, we have to note the following:—

Daily Readings in Natural Science, with a Series of Questions on each Lesson. By the Rev. J. Robertson, LL.D. London: Charles Bean, 81 New North Road. 1874.

The author discovered in the practical working of his own school that no sooner were science classes introduced than boys who took little interest in the curriculum displayed a remarkable quickness in dealing with natural objects; hence larger time was given to this educational branch, and the "Daily Readings" are now published in a connected form for general use in schools. The subjects chosen are natural history and natural phenomena: physics, astronomy, animal physiology, manufactures, botany and chemistry. Each in turn forms a lesson for one day, twelve questions being appended by way of examination. Perhaps such a scheme may serve the purpose of awakening a desire for further systematic study, but unless the children of this generation are wiser than their predecessors they will be rather stumbled by this condensed and un-illustrated mode of teaching.

Moreover, with regard to the two studies with which we are ourselves specially concerned, chemistry and botany, we do not attach the slightest value to a three-paged reading of either unless the truths of the one are rendered clear even to the mind of a child by simple chemical equations and experiments, and the bare descriptive text of the other is relieved by appropriate and indispensable engravings.

Chemical Notes for Pharmaceutical Students, including the Chemistry of the Additions to the Pharmacopœia. By A Rivers Willson. London: Ballière, Tindall & Cox, 20 King William Street, Strand. 1875.

This useful little work is intended, as its name implies, to present in a portable form and convenient compass the main chemical facts of the British Pharmacopœia and Addendum. It will be found of service as an efficient recapitulation both of pharmacopœial processes and of the statement of the decompositions which are involved.

The opening chapter contains a brief summary of chemical definitions, in which atomic and molecular weight, chemical combination, quantivalence, chemical affinity and action are described. A fair explanation, as far as the limited nature of the book allows, is given of the nature of acids, acidulous and basylous radicals, salts and anhydrides, a section which should carefully be committed to memory, in order to secure real progress in the science. Should Mr. Willson achieve the honour of a second edition he will find the enlargement of the note on chemical equations a decided advantage. No branch of the subject is more important, and there is none which a student seems to find so difficult to understand.

The order followed in commenting on the various bodies is uniform with their occurrence in the B.P.; the notes, in fact, are meant to be studied in conjunction with the authorised text. This plan is excellent; the descriptive paragraphs are concise, clearly written, and invariably to the point, while much uncertainty and useless explanation is obviated by presenting wherever practicable in bold type the equation expressive of the chemical action.

The notes are completed by more detailed references to certain processes, a knowledge of which is essential to every pharmacist. We have thus a description of the use and construction of a thermometer and the mode of calculating the different degrees adopted, a chapter on specific gravity, and a very good note indeed on simple analysis or testing. The two tabulated arrangements of the reactions of the metals and the reactions of the acids will much facilitate the studies of the class for whom this compendium has been specially framed. To such fortunate individuals as have leisure and laboratory instruction, this volume will not prove attractive, nor would its scope be found sufficiently extensive; but it will meet the wants of those whose aims are less ambitious and for whom it is desirable that their instruction should be conveyed in a simple and well connected manner.

Chemistry. By Alex. Crum Brown, M.D., D.Sc., Professor of Chemistry in the University of Edinburgh. W. & R. Chambers: London and Edinburgh. 1875.

The name of the author of this little manual is sufficient guarantee for excellent work, and the treatise itself well sustains the reputation of the writer. Its pages are designed, in the first place, for self-instruction; and, secondly, as a text-book to be used in schools. In no other treatise of similar length have we a better, or, perhaps, an equal explanation of the principles of the science, and particular mention may be made of the mode in which the difficulties relating to varieties in chemical nomenclature are elucidated. The manual is divided into three parts: 1, General Principles; 2, The Facts of Chemistry; 3, Organic Chemistry. Most confidently would we recommend this "Chemistry" to be read by any private student as an adjunct to Frankland's elementary instructions, for the detailed list of experiments in the one would supplement and illustrate the theory of the other.

As a proof of the clearness of Dr. Crum Brown's manner of teaching we might point to the paragraph on Acids, Bases, and Salts; or, to the notices respecting Equivalents, the Atomic Theory and Chemical Notation. This praise might be extended to the short but satisfactory sketch of chemical formulæ. Compound substances are described as being represented by formulæ expressing the proportions by weight of their elementary constituents—a matter abundantly illustrated by examples. With regard to the symbols of radicals, it is shewn that salts can be represented not only as compounds of base and acid (anhydrous), but also as compounds of metal and salt-radical, the salt-radical consisting of the anhydrous acid and the oxygen of the base. The formulæ, therefore may be represented in two ways, thus:—

Hydric sulphate, H_2O,SO_3 or H_2,SO_4
Sodic sulphate, Na_2O,SO_3 or Na_2,SO_4
Cupric sulphate, CuO,SO_3 or Cu,SO_4.

Many of the perplexities in the theory both of nomenclature and notation are carefully removed, while the same admirable clearness and simplicity of style runs throughout the whole book.

The "facts" of chemistry relate to the chief gases; the compounds of nitrogen and ammonia: carbon, chlorine, sulphur and phosphorus, and the six groups of metals. Short notes on bromine and iodine and substances of less prominent importance are included; while the relations of a few of the compounds coming under the term of organic chemistry are briefly described. 160 questions for examinations are subjoined. We cannot express too highly our admiration either of the design or the execution of the manual.

An Introduction to Animal Physiology, with Directions for Practical Work. By E. Tulley Newton, F.G.S., Assistant Naturalist H.M. Geological Survey. London: Thomas Murby, 32 Bouverie Street, Fleet Street, E.C. 1875.

The chief design of this manual is (as stated in the preface) to meet the requirements of pupils preparing for the first stage examinations of the Science and Art Department in animal physiology. As physiology is based upon anatomy, and indeed the two studies depend the one upon the other, a considerable portion of the introductory pages is occupied by anatomical descriptions, the text being well illustrated by wood engravings. The various functions of the body, the blood, and kindred subjects, such as the organs of circulation, respiration, secretion and excretion, and the nervous system, are treated of in a popular manner.

A distinguishing feature of the book consists in the introduction of practical sections, printed in smaller type, where directions are given for personally working out and gaining a practical acquaintance with the objects that have been previously described. These exercises in manual operation are graduated, and will be a most useful preparation for future and more extended researches.

A new (illustrated) edition of Professor Attfield's "Chemistry" will be published by Van Voorst on October 1. This will make the sixth edition already issued.

Mr. H. A. Huntley, analytical chemist to Messrs. Barrie & Co., Madras, knows exactly what "Life" is, and he undertakes to tell the world in a pamphlet of 50 pages, for which two shillings are modestly asked, and which we are sorry to see Messrs. Longmans have honoured with their name. "Life" has sometimes been considered a mystery. It now turns out to be nothing of the sort, as the reader will comprehend when he has mastered Mr. Huntley's lucid account of it. According to him—

> Thermo Dynamical Phenomena—or as some term it—"*Life*" from the lowest Organism a fungus, or a monad, up to man—is a simple,—and by gradual cosmic Evolution a most complicated kind of machinery—is matter—living matter (sensible or kinetic,) however by Cosmic Evolution to-day, either in the speck of *Bioplasm* in the cell of a fungus—a dog—or a man,—or in the numerous Bioplasts of their various textures respectively. But—nevertheless the remote RESULTS by Evolution (cosmic) of *Primeval, Potential* or Non-Living matter, effected by the *Primeval* vibration of Thermo Dynamical action upon our earth,—(in the recesses of her remote antiquity, and when, (as has been advanced) she maintained favourable conditions for the display of Thermo Dynamic action), with the production of low forms of Organisms upon her adaptable surface.)—These low organisms being Matter, dependant upon *matter* palladium—in the form of solids and gases dissolved in water. More complex organisms, as the Flora and Fauna—being Matter pervaded by a current of the Energy Heat—dependant upon more complex palladium, as Vegetables, &c.,—effected in both by the processes of *nutrition* and *accretion*.

We found this summary of the author's views so ample that we have not investigated his arguments any further. But it appears from another page that Heat "(a product of our material luminary the Sun)" "is the Eternal prime Energy." How it can be a product of anything and at the same time "Eternal" is a problem which we presume must be left for the author's friends "Atheism and Materialism in chorus with modern Science" to fathom. The object of that interesting trio is to tell Dr. Beale—who seems to be regarded as the representative of Theism—"that his vague and ideal anticipation will never be realised," an assurance which it may be satisfactory to Dr. Beale to know is given on no better authority than that of the genius who compounded the paragraph we have quoted above.

A clever, sarcastic pamphlet, entitled "All the Articles of the Darwin Faith," by the Rev. F. O. Morris, B.A. (London: Moffatt, Paige & Co.), is quite worth reading by those who have interested themselves in the evolution controversy. Particularly we recommend it to those flippant scientists who seem to fancy that Darwin's opponents are by this time finally settled, and who would place that theorist himself on the level of such true discoverers as Newton and Copernicus, not to mention such a crushed pigmy as poor Moses at all. The superciliously confident tone adopted by the advocates of the "one-portal" idea of creation has imposed on a section of the student world, and it has certainly justified the satire of this author, who represents an imaginary Darwinite as arguing that opponents "distinguished in the highest departments of art, science, and politics, are quite beneath me in mind and attainments, *for if I am right, as I must be, and therefore am, they, of course, must be wrong.*" Darwinism has what the Americans would call "a long row to hoe" yet before it can get itself quoted on the exchange of discovered truths. It has made considerable noise within the past few years, but it is as well for us to remember that at the best it has proved no more than that creation *may* be something precisely different to what it seems to be.

THIS IS THE MOMENT when Almanacs for distribution must be ordered for the ensuing year. We have received a specimen from Mr. Silverlock of the "Sachet" almanac prepared by him. It is most artistically designed, and offers an admirable means of advertising proprietary articles and specialities to the better classes of customers. The cases are printed in gold and various colours, and within the first pages is a space adapted to receive some perfumed powder. A little present like this will win a lady's favour during the year, and not much else is necessary to secure success in business.

ALMANACS of a different style are issued by Messrs. Cassell, Petter & Galpin. These are excellently compiled, and in some cases illustrated, books containing a considerable amount of really interesting reading matter. This portion of the book is supplied at a moderate price, and the tradesman may add to it local information or advertisements *ad libitum.* If desirable Messrs. Cassell are also prepared to offer their customers certain advertisements of London houses. They announce that they will only supply one house in any town with the same almanac, and their own name does not appear in any way.

WE HAVE BEFORE US the fourth edition of Elliott's "Druggist's Price Book," published by Mr. H. Silverlock. This book is extremely useful to chemists, first, as it is very complete, and secondly, because it is so arranged as to show in one line the wholesale cost price of each substance, and the retail price in various quantities and to different classes of customers.

A THIRD EDITION of Dr. Handsel Griffith's "Posological Tables" has been published by Messrs. Baillière, Tindal & Cox. We still fail to see the usefulness of this chart, as we did when a copy of the first edition was sent to us. It is a large single sheet, and the substances are grouped in such an ultra-scientific manner in classes and sub-classes that it takes quite an education to be able to discover the dose of any particular drug. Besides, in all cases of any importance the Pharmacopœia is a quite sufficient guide.

MUCH MORE USEFUL than the foregoing is a little pocket manual entitled "Posological and Therapeutic Tables," by Alexander Henry, M.B. (Maclachlan & Stewart, Edinburgh). In this medicines are arranged alphabetically, and besides the doses, the actions and uses, and in some cases the best methods of administration, are added. An Index of Diseases, with appropriate remedies, a classification of medicines, and a chapter on poisons are also added.

DECIMALS AND THE METRIC SYSTEM are to some minds hopeless mysteries. A comprehension of them is, however, necessary to pharmaceutists, and they are very lucidly explained in a small pamphlet by Mr. Henry Judd. This little treatise is especially useful in consequence of a series of questions relative to chemical and pharmaceutical matters which it contains.

A SIXTH EDITION of Dr. Ruddock's "Lady's Manual of Homœopathic Treatment" is to be noted. Several new sections are added to the work, and it must be said that the fascinating subject of women's diseases is here treated as clearly as the most exacting student could require. Marriage and its attendant miseries are here unfolded with sufficient vividness to check all rash approach towards that holy estate; and the book is bound and presented in a style befitting a volume of Tennyson. May we respectfully ask the author to re-read his "Note to the Sixth Edition" and kindly to explain the first paragraph, which runs thus:—

> The matter in this volume has been very considerably increased, partly by adding to the number of pages, partly by condensing some portions, but chiefly by the adoption of a much larger page than in the former editions.

Enlarging the pages does not necessarily involve an increase of matter; still less should we expect condensation to produce this effect.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

FOR DISPOSAL.

1 cwt. rose pink. Offers or exchange. Kay, Stainland.

"Pharmaceutical Journal," posted Monday night. Offers wanted also for the same from beginning of 1873. 20/102.

Complete set for Minor and Preliminary, cheap and clean. J. W. Porter, Newnham, Gloucester.

Case of eight Garforth's tooth forceps. Tomes' pattern. Cost 1*l.* 12*s.* 6*d.*, for 1*l.*, quite new. Jenkins, dentist, Dowlais.

A complete set of apparatus for volumetric analysis (second hand). Price 15*s.* "Octavius," Post Office, Worcester.

"Pharmaceutical Journal" from commencement. Two series bound. What offers? Bird, Cawston, Norfolk.

First-class mounted and unmounted microscopic objects. F. R. Martin, Shaldon, Devon.

Pillar dispensing scales, Maw's fig. 7, nearly new, 15*s.* F. R. Martin, Shaldon, Devon.

Avery's agate balance, 926 catalogue, 18-inch beam, brass scale pans, good condition; cost 60*s.* What offers? Wright, Chemist, Burnley.

Fownes' "Chemistry," 9th edition; 14 1*s.* numbers Muspratt's "Chemistry;" Lescher's "Elements of Pharmacy;" all half price. W. Allis, Horncastle.

Counter oval case, 49 inches by 9½ inches, 5½ inches deep. Plate glass. Offers wanted, or exchange for oil cistern. Banbury, Marlow, Bucks.

Three pairs scales, Fergusson's "Practical Surgery," Ramsbotham's "Obstetric Medicine and Surgery." Cash or exchange. Stead, Chemist, Lees, near Manchester.

Rhind's "History of Vegetable Kingdom," in fourteen 2*s.* monthly parts; unsoiled. Price 14*s.* the lot. Coverdale, 2 Red Lion Square, Stamford.

1½ cwt. Jamaica ginger powder (quality and colour), 14 lbs. and upwards, 8*d.* per lb.; samples, 2*d.*, stamps. Merchant, 60 Silchester Road, Notting Hill, London.

A quantity of Tomlinson & Co.'s sheep-dipping compo, fresh, clean, and right, in packages various sizes. A. Z., Hill House, Gordon Road, Peckham.

Fol. Sennæ Tinnevelly opt., 7½*d.*; oleum palmæ opt., 4½*d.* Sample of either (free) for penny stamp. Macpherson, Stornoway.

For sale first-class mahogany fittings (by Kidston), consisting of handsome specie jars, glass cases, together with drugs supplied by the best houses. Can be seen by appointment Apply to R. T., 30 Walbrook, E.C.

Bent front mahogany homœopathic case, filled, contents to realise 5*l.* 2*s.* Price two guineas. Also 3-light chandelier; bronze; price 2*l.* 10*s.* Both nearly equal to new. B., 33 Norfolk Terrace, W.

Pair of brass scales, mahogany stand, 18 by 9 in., Maw's, with drawer, weights, &c.; 4 show bottles (carboys) and stands; nearly 300 bottles and jars, with gold labels and contents. Hiscock, 53 High Street, Sheerness.

The "York" improved refrigerator, three months in use, size 2 feet 8 inches long, 2 feet 1 inch wide, and 2 feet 7 inches high. Cost 6*l*. 6*s*. Weekly supply of ice, 75 lb. Offers wanted. T. Farthing, Spennymoor.

Attfield's "Chemistry," 4th edition, new; Royle's "Materia Medica," 5th edition; Cassell's "Shakespeare," in 3 vols., bound, new; 2 Maw's swimming belts, middle size, new, cost 8*s*. 6*d*. each; "Pharmacopœia," 1867. What offers? J. Lea, Hinstock, Market Drayton, Salop.

A splendid little Albion printing press, all metal, prints 7 by 5, with upwards of 100 lbs. of various types, borders, &c. Cost about 20*l*. Little used. Owner not having time on hand, will sell or exchange for something useful. Apply to Dr. Cooper, Bandon, Co. Cork, Ireland.

Nearly new. A mahogany plate-glass show case, as fig. 3 in Maw's catalogue; bent top, carved scroll, 4 feet long, 2 feet wide, 2 feet high; cost 15*l*. 4*s*. Also a mahogany desk, as Maw's fig. 37, in excellent condition. Offers wanted. Monkhouse, Chemist, Derby.

Handsome mahogany show stand on castors, suitable for first-class shop; upper part has four receding shelves; table, which is supported by elegant carved legs in front, will hold large goods or glass cases; lower portion contains two shelves, running whole length and depth; prominent parts are Spanish mahogany veneer; whole French polished and in good condition. Length, 5 feet 5; depth, 1 foot 9; height, front, 3 feet 4; back, 4 feet 11. New three years ago—lowest price, 5*l*. R. Lyon & Co., Ipswich.

Bell's "Principles of Surgery," 4 vols., 8*s*.; Andral's "Anatomy," 4*s*. 6*d*.; Copeland's "Dictionary of Medicine," 5*s*.; "Medical Gazette," 25 vols., 1*s*. 6*d*. each; Good's "Study of Medicine," 5 vols., 5*s*.; Cooper's "Surgery," 4*s*.; Ure's "Dictionary of Chemistry," 4*s*.; Mayou's "Outlines of Physiology," 3*s*.; Gregory's "Practice of Medicine," 3*s*.; Ure's "Dictionary of Medicine," 3*s*.; Paris' "Pharmacologia," 2 vols., 4*s*.; Copeland's "Elements of Physiology," 3*s*.; Orfila "On Poisons," 2 vols., 4*s*.; Hall's "Principles of Medicine," 2*s*. 6*d*.; Laenac's "Diseases of Chest," 2*s*. 6*d*.; Cuvier's "Animal Kingdom," 5 vols., 10*s*. Barth's oxygenator, with two bottles, complete, 3*l*.; 24 3-grain pill machine, with rollers, 5*s*.; Smedley's ascending douche, 50*s*. Hawthorne, chemist, Stafford.

Sponge case as Maw's 92; best plate counter case, 38 × 24 × 10, 45*s*.; do. do. as Treble's No. 9, 3 feet 9 inches long, 10 inches wide, 8 inches deep; a best glass do., 3 feet long, 17 × 8, as Treble's No. 9; a 2 feet 6 × 17 × 8 best glass case, 24*s*.; a 5 feet, as Maw's 105, 6*l*.; a 4 feet, as Treble's No. 106, 4*l*.; a Spanish mahogany soda water stand; a pair specie jars, royal arms, glass gold tops, 30 inches high; one do. 32 inches high, Prince Wales feathers; a do. 26 inches high, gold glass top; fifteen 3 lb. do. ointment jars, labelled; fifteen 6-oz. Ex. pots olive, labelled; six dozen brown stone pots, japanned covers; two 10-gal. carboys; four 4-gal. carboys; three pair 3-gal. carboys; two squares of silvered plate glass, 66 × 18, 45*s*. each; one do. do., 55 × 24, 45*s*.; one do. do., 35 × 30, 40*s*.; two, 34 × 32, 42*s*.; one do. do., 40 × 39, 55*s*.; also a number of lengths from 5 inches to 12 inches, about 4 feet long. E. Natali, 23 Colveston Crescent, Ridley Road, Kingsland.

For sale, complete, condition very good, carriage paid, Miller's "Chemistry," 2nd edition, 3 vols., 20*s*.; the Inorganic portion, 7*s*. 6*d*.; Piesse's "Perfumery," 6*s*.; "Celsus," 2*s*. (published 8*s*.); Andral's "Anatomy," 2 vols., 5*s*.; Vogel's "Anatomy," 5*s*.; Gregory's "Practice of Medicine," 4*s*.; Quain's "Anatomy," 4*s*.; Bentham's "British Flora," last edition, new, 35*s*. (published 3*l*. 10*s*.); Cooper's "Surgical Dictionary," 3*s*. 6*d*.; Rennie's "Supplement to Pharmacopœia," 2*s*. 6*d*.; Smith's "Evidence for Medical Witnesses," 2*s*. 6*d*.; Rimmel's "Book of Perfumes," 6*s*.; "Zoological Record for 1870," new, 15*s*. (cost 30*s*.); Rosseter's "Botany," new, 1*s*.; Craigie's "Pathological Anatomy," 4*s*.; Dobell's "Diseases of the Chest," 7*s*. 6*d*.; Balfour's "Class Book of Botany," 18*s*. 8*d*. (publishe 31*s*. 6*d*.); Cooley's "Practical Receipts," 14*s*.; Markham' "Diseases of the Heart," 3*s*. Apply, by letter only, t M. P., 24 Whitcomb Street, Leicester Square, London,W.C

Mahogany dispensing screen, 6 feet 4 long, as Maw's 16 mahogany dispensing screen, 6 feet long; one 2 feet 9 long two 2 feet 3 long; one 2 feet 2 long; upright mahogan counter cases; one upright mahogany show case, with desk as 38 Maw's; three mahogany counter desks; mahogan show stand, as 55 Maw's, 3 feet 10 long; one 3 feet 9 long mahogany plate-glass show-cases, as 100 Maw's; one 3 fee long; one 2 feet 8 long; bent plate-glass show cases, a 41 Maw's; three 3 feet long; two 4 feet long; plate-glas cases, similar to Treble's No. 10; one plate-glass case, a Treble's 109; handsome bent plate-glass sponge case, a 92 Maw's; plate-glass sponge case, 4 feet long, as 90 Maw's one 8 feet 10 long; one 7 feet 4 long; one 5 feet 3 long one 3 feet 2 long; one 2 feet 8 long; one 2 feet 4 long mahogany gold-labelled shop drawers; one 5 feet 4 long 7 feet 6 high; mahogany wall case, with mahogany gold labelled shop drawers under; one 9 feet long; one 8 fee long; one 5 feet long; one 4 feet 6 long; one 4 feet 2 long one 2 feet 7 long mahogany wall cases; handsome soda water stands, as Maw's 62 and 63; counter and dispensin scales, as Maw's figs. 1 and 7; 1,000 blue, olive, green white, shop jars, all sizes; 3,000 shop bottles, all sizes large stock show carboys; swan-neck carboys; show jars lozenge jars, with cut-glass knobs, gold-labelled, as 2 Maw's brass window fittings; silver plate-glass, &c. Lloy Rayner, 333 Kingsland Road, London, N.

WANTED.

Soda water machine and bottles; also some shop-bottles, &c "Chemist," 34 High Street, Putney, Surrey.

A sponge case, fig. 92 Maw's, in good condition. Lowest price to M., Bridge Street, Worksop.

Chemist's lamp wanted, in good condition. Address, W., 212 Seven Sisters Road, Holloway, N.

Neat second-hand dispensing screen, with glass show case and fitted at back. J. Clark, Chemist, Church Street, Sheffield

Cases in good condition, like Maw's figs. 40, 21, without desk and Treble's 137. Parrett, Chemist, Winslow.

Quart tincture press. Apply, stating price, to H. S. Breckon, 15 Flowergate, Whitby.

One shilling offered for The Chemist and Druggist of January, 1863; only the first offer will be replied to. Edward Halse, 44a Cannon Street, London.

A good strong second-hand dental chair, with head rest, &c. Particulars, with lowest price for cash (securely packed), to J. D., Post Office, Rothwell, Kettering.

A framed card, "Teeth carefully extracted." State price. Address, Mr. Sydney Smith, 27 Market Place, Penzance, Cornwall.

Squire's "Pharmacopœia," Bentley's "Botany," Attfield's "Chemistry," latest editions. J. H., 169 Hemingford Road, Barnsbury.

Attfield's "Chemistry," Bentley's "Botany," Pereira's "Materia Medica," by Bentley & Redwood; latest editions. State price and condition. A. Baker, Bridge Street, Hitchin.

Dentists.—Wanted, stopping, sealing and extracting instruments, impression pans, glass case for outside specimens, Tomes "On Dental Surgery," Cole "On Mechanics." Cooper, Chemist, Macclesfield.

We understand that the Silicated Carbon Filter Company, Battersea, have received an order from the Indo-European Telegraph Company, Kurrachee, for a supply of their largest sized filters, for use at the various stations along the route. Filters upon this principle have been in use for many years at the General Post Office in London, and they have also been adopted by the Telegraph Department and several other branches of the public service.

PATENTS

The following list has been compiled expressly for The Chemist and Druggist by L. de Fontainemoreau & Co., Patent Agents, 4 South Street, Finsbury, London; 10 Rue de la Fidélité, Paris; and 33 Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following :—

415. N. Thompson, of Brooklyn, New York. Improvements in stoppers for bottles, jars, and other hollow articles. Dated July 3, 1875.

534. J. M. Plessner, of Golden Square. Improvements in cap or stopper mounts for perfume and liquid smelling bottles. Dated July 14, 1875.

551. A. Macdonell, of Newry, Ireland. Improvements in machinery for filling and corking bottles. Dated July 16, 1875.

2573. J. P. Prince, of Davies Street. An improved syringe for surgical purposes. Dated July 19, 1875.

2669. C. Heinzerling, of Glasgow. Improvements in the manufacture of bichromate of potash and in the manufacture of iodine and bromine. Dated July 28, 1875.

2776. D. Elias, of Southport, Lancaster. Improvements in and connected with stoppers for bottles and other containing vessels. Dated August 6, 1875.

2805. C. Groubman, of Odessa, Russia. Improved means of stopping or closing bottles to facilitate the drawing off of their contents. Dated August 9, 1875.

2808. J. Waugh, of Glasgow. New or improved apparatus for charging bottles or other vessels with gaseous or effervescing liquids, and improvements in closing bottles containing such liquids, and the machinery employed therefor. Dated August 10, 1875.

2835. J. Lingard, of Salford, Lancashire. Improved stoppers for bottles containing aërated waters, and in apparatus for filling the bottles with aërated liquids. Dated August 11, 1875.

Letters Patent have been issued for the following :—

474. T. W. Wilson, of Woodbridge, Suffolk. Improvements in apparatus or machinery for cleaning bottles. Dated February 8, 1875.

597. J. Sinclair, of Manchester. Improvements in face shields for respiring in noxious atmospheres. Dated February 18, 1875.

627. W. A. Lyttle, of the Grove, Hammersmith. Improvements in the means and apparatus for manufacturing alkali, which improvements are partly applicable to other purposes. Dated February 20, 1875.

686. J. T. Way, of Russell Road, Kensington. Improvements in the production of soluble phosphates of lime. Dated February 24, 1875.

749. W. H. Harrison, of Oxenden House, Oxenden. Improvements in boxes for containing tooth-powder and other such like powders. Dated March 1, 1875.

800. H. B. Pare, of Bolton, Lancashire. An improved cap for feeding or other bottles. Dated March 4, 1875.

1346. J. Paris and J. Adam, fils, both of Bordeaux, France. Improvements in packing cases or receptacles for bottles and jars. Dated April 14, 1875.

Specifications published during the month :—

Postage 1*d*. each extra.

1874.

4342. A. V. Newton. Manufacture of sulphuric acid. 1*s*.
4414. W. A. Ross. Aërated and other waters. 6*d*.
4415. W. A. Ross. Bottling apparatus. 8*d*.
4424. W. E. Gedge. Corking or stopping bottles. 6*d*.
4437. R. Ellis. Aërated waters. 4*d*.

1875.

15. J. Waugh. Closing and opening bottles, &c. 4*d*.
22. P. Evans and another. Stoppering bottles. 4*d*.
122. R. R. Holmes. Aërated liquors. 4*d*.
181. J. Box and others. Manufacture and application of phosphate of iron. 4*d*.
200. M. Mackay. Compounds for dissolving resins, &c. 4*d*.

GAZETTE.

BANKRUPTS.

Coall, William Frederick, & Nerwick, Louis Henry, trading as Coall & Nerwick, 33 Upper Sackville Street, Dublin, druggists' perfumery and oil merchants. August 13.

Thomas, William G., Llanerchymedd, Anglesea, chemist and provision dealer. Sept. 3.

LIQUIDATIONS.

(By arrangement or composition.)

Notices of first meetings have been issued *in re* the following estates. The dates are those of the petitions :—

Ayres, James W., Park Terrace, East Greenwich, doctor. August 10.

Cresswell, Randal, Red Lion Square, Holborn, sponge merchant. August 7.

Entwistle, John B., Church Street, Blackrod, and Duke Street, Liverpool, and Everton, patent medicine dealer and druggist. August 21.

Hedley, John, trading as Hedley & Fleming, Sunderland Street, Houghton-le-Spring, chemist, and Robinson Street, Houghton-le-Spring, ale and porter merchant. August 24.

Hingston, Andrew H., Gloucester Road, Regent's Park, late 58 Bold Street, Liverpool, chemist. August 19.

Hodgson, William, trading as the Nottingham Mills Co., Falsgrave, Scarborough, and East Stockwith, near Gainsborough, chemical manure manufacturer. August 19.

Mackay, Henry, South Stockton, medical practitioner. August 10.

Merrilees, John C., Ridley Street, Birkenhead, and Mount Pleasant, and Great Homer Street, Liverpool, dental surgeon. August 11.

Stead, George, Ditton, late Widnes, both Lancashire, chemist. August 14.

Stower, Jacob & Herbert S., Harrington Street, Liverpool, late Harrington Street, Liverpool, and Commercial Street, Whitechapel, London, trading under the style of Jacob Stower & Son, the said Jacob Stower now trading as Alexander Riddle & Co., at 16 Commercial Street, Whitechapel, merchant. August 26.

DIVIDENDS DECLARED.

Crawshaw, James, William & John, & Stephenson, John Taylor, trading as John Crawshaw & Co., Elton, Lancashire, drysalters, third and final div. 1*s*. 1½*d*., A. W. Chalmers, 5 Fenwick Street, Liverpool.

Hewby, William C. (Bkt.), Huddersfield, surgeon, third and final div. 10*d*., W. H. Burrell, 18 Albion Street, Leeds.

Purcell, Francis John, trading as Purcell & Son, Thomas Street, Dublin, wholesale druggists, first div. 5*s*. in the pound, on 6,763*l*. O.A., C.H. James. Solicitor, — Davoren.

BANKRUPTCY CLOSED.

Furnival, William, Earlsdon, near Coventry, veterinary surgeon. (A div. of 5*s*. 1½*d*. has been paid). Bankruptcy closed August 10.

PARTNERSHIPS DISSOLVED.

Blackmore & Hicks, 301 Old Street, 149 Amherst Road, Hackney, and 21 Douglas Road, Islington, surgeons. August 13.

Brown, Crowther & Son, Hightown, Liversedge, Yorkshire, soap manufacturers and chemists. August 18. As regards John Brown.

Greenwood & Hepworth, Cleckheaton, Yorkshire, chemists. August 16.

Jones & Webster, Clapham Road, physicians and surgeons. June 7. Debts by David Jones.

Mallam & May, Loraine Place, Holloway, surgeons. June 30.

Mackern & Dawson, Long Eaton, Derbyshire, surgeons. August 28. Debts by Walter Mackern.

Mullings & Stericker, Gower Street, surgeons. June 24.

Corrected Notice.

Turner, Hardy & Watts, Manchester, homœopathic chemists. As regards Henry Turner.

Turner, Henry, & Co., 77 Fleet Street, London, homœopathic chemists. As regards Robert Hardy and J. J. Watts.

THE CHEMIST AND DRUGGIST

☞ *The "CHEMISTS' AND DRUGGISTS' DIARY" for 1876 is now in course of preparation. Firms desiring to secure space therein for Advertisements will oblige by communicating with the Publisher at an early date. A copy of this Diary will be presented free to every subscriber to the Journal.*

OFFICE—Colonial Buildings, 44a Cannon Street, London.

RENDALL'S THEOBROMINE,
OR
CONCENTRATED COCOA,

BEING a first-class article, and nicely got up, commands a good sale by all Chemists who bring it under the notice of their customers.

In 1*s*., 2*s*., 3*s*. 9*d*., and 7*s*. 6*d*. tins, through the Wholesale Houses, or direct from the Proprietor,

J. M. RENDALL,
28 QUEEN STREET, EXETER.
Chief Wholesale Agents—
SANGER & SONS, 150 OXFORD STREET, W.

CAUTION.
WORCESTERSHIRE SAUCE.
IN CHANCERY.
LEA & PERRINS, of Worcester,
AGAINST
ALFRED ROBERT LEE,
Trading as A. R. LEE & Co., at Rainford Junction, Lancashire.

TAKE NOTICE that on the 30th July, 1875, a Perpetual Injunction was granted in the above cause by His Honour, the Master of the Rolls, restraining the Defendant from using the word "Worcestershire," or any word only colourably differing therefrom, in connection with any Sauce manufactured by him, and any Labels or Wrappers resembling those used by the Plaintiffs.

All persons are hereby cautioned not to sell as "Worcestershire" or "Worcester" Sauce, any Sauce other than that manufactured by Messrs. Lea & Perrins, Worcester, or to use any Labels or Wrappers resembling theirs.

THOMAS SOUTHALL, Worcester,
Solicitor for the said Messrs. Lea & Perrins.

POROUS BATTERY CELLS
OF SUPERIOR QUALITY.
PATENT PLUMBAGO CRUCIBLE COMPANY,
Sole Makers of Morgan's Patent Crucibles,
BATTERSEA WORKS, LONDON, S.W.

DOMESTIC FILTRATION.

"WITH regard to the Silicated Carbon Filters, I have made many experiments upon them, and have been astonished at the energy and rapidity of their action. I passed through a small Filter of this make some of the worst description of water supplied by the London Water Companies, and found it, after filtration, to have become as pure as the very best London water. My experiments show that the Filter exercises a decomposing action—a chemical action—on the Organic impurities in Drinking Water. I have no doubt that water, which is dangerous from the Organic Matter contained in it, becomes *safe* on passing through the Silicated Carbon Filter. A point of some importance, shown by my experiments, is that a Second Filtration still further improves the quality of Drinking Water. After being in use for a considerable period, Filters lose their power and require renovation. I have found that the passage of a little Hot Water through the Silicated Carbon Filter, and afterwards blowing a little air through it, restores its power."

J. ALFRED WANKLYN, M.R.C.S., London,
Formerly Professor of Chemistry in the London Institution;
Joint Author of a Book on Water Analysis, and of the Ammonia Process.

FRIEDRICHSHALL · VICHY · CARLSBAD · PULLNA
THE NATURAL MINERAL WATERS OF
AND ALL OTHER SPAS
IMPORTED BY
HOOPER AND COMPY,
7 PALL MALL EAST, LONDON.

REDUCTION IN PRICES.
GENERAL MINERAL WATERS DEPÔT,
27 MARGARET STREET, REGENT STREET,
LONDON.

The British Pharmaceutical Conference.

TWELFTH ANNUAL MEETING.

BRISTOL, AUGUST 24 AND 25, 1875.

THE Pharmaceutical Conference has struck into its natural orbit again after its metropolitan vagary of last year; and, however discouraging the statement may be to London members, it must be acknowledged that it seems much more at home and to breathe more freely in the provinces than it did in what should have been the congenial atmosphere of Bloomsbury Square. Daylight pharmaceutical discussions had a strangely incongruous air about them in London, and Mr. Groves must have been cheered by the contrast when he delivered his address this year to about a hundred members if he recalled the miserable exhibition which some two or three dozen of us made when the meeting of 1874 was opened.

It is getting an old phrase to say that the success of the association is now beyond all question. We have said that nearly a dozen times, and greater authorities have also published the assertion. But this year it has prospered with a leap and a bound, as Mr. Gladstone would say, at least if balance sheets and membership rolls are worth taking into account; so that we must be excused for once more repeating the congratulation. Instead of 3*l*. 8*s*. 9*d*., as last year, the treasurer holds this year 239*l*. 1*s*. 2*d*.; the number of members has been augmented from 2,300 to 2,700; and among the new 400 are some of the most eminent names in chemical science.

This last fact was officially pointed out as an eminently satisfactory one. We suppose it ought to be so regarded; but we conceive with dismay the possibility of some future meeting of the Conference, with such luminaries as Professors Frankland and Odling in attendance, and one of Dr. Wright's fearful and wonderful papers up for discussion. Pharmacy pure and simple may gather up its feet and expire with what grace it can when this glorious consummation occurs.

Mr. Groves gave an excellent address this year, alluding cogently to many of the subjects of political interest, and concisely summarising the novelties in materia medica and pharmaceutical chemistry. Early closing and Mr. Schacht's proposal of a model pharmaceutical laboratory at Bloomsbury Square received hearty advocacy in the course of this address, while with an equal distinctness of expression the Pharmaceutical Council was reproached for its "weak protest" and easy surrender of the title "Pharmaceutical Chemist" to parliamentary clamour.

The papers read can hardly be considered above the average in point of interest or pharmaceutical value, taken as a whole. It is dangerous as well as heterodox to indulge in a *cui bono* respecting anything scientific, but it demands a mighty faith in the future of our species to imagine a period when the researches of Dr. Wright on the chemistry of the aconite alkaloids can prove of any possible service. Mr. Groves himself, than whom no one living is more qualified to pass an opinion, for he investigated the chemistry of the aconites for years, was courageous enough to express a doubt whether the subject was worth pursuing further. Mr. Pocklington's papers, too, might have been absent from the series without any serious loss to the wealth of the Conference. They were written in a studiously unpopular style, and were at the same time singularly crude as scientific productions. One of them, however, introduced a sufficiently alarming prospect as to probable complications in analytical chemistry. Mr. Stoddart, it seems, is a believer in certain forms of optical analysis. According to him Mr. Groves, who does not see spectra just as clearly as he does himself, is *therefore* colour-blind. What troubles us is the bare possibility of Mr. Stoddart's own vision being defective. Macbeth saw the ghost of Banquo clearly enough, though it was not visible to the guests at his party. Macbeth may have been right, and all the rest wrong. But it may have been otherwise.

The triangular combat between Messrs. Allen, Stoddart and Horsley was the sensational event of the Conference. Commencing as a mere discussion, it developed into a dispute, and before finishing it very nearly assumed the dignity of a quarrel. Mr. Allen was blamed in some quarters for introducing anything like discord into the prevailing peace. Whether his motive was simply a desire for truth, or whether it arose from inherent pugnacity, we cannot tell; but it appears to us that unless Mr. Horsley did himself woeful injustice, his castigation was most handsomely deserved. Some time ago he published as his own invention a process for estimating fat in milk. Mr. Allen shows that a curiously similar process was published previously by a French chemist. Mr. Horsley indignantly denies any piracy on his part, and attempts to fortify his position by the assertion that the French process had been published twenty years before his. It would have been a stronger argument if he could have shown that it had appeared twenty years after his.

Mr. Symons, of Barnstaple, contributed perhaps the most useful information to the Conference by indicating a method of preparing an elegant and perfectly-mixed acetic turpentine liniment. Mr. Gerrard pointed the way to go in the manipulation of jaborandi. Mr. Williams gave conclusive evidence as to the power of glycerine in preserving hydrocyanic acid. Mr. Umney forcibly advocated crystals of citrate of lithium in the place of the anhydrous powder which the Pharmacopœia now orders; and Mr. Benger reported some experiments, which, however, were not altogether satisfactory as to the preservative powers of the highly-vaunted salicylic acid. The magnesian carbonates and the calcium phosphates of trade were reported on respectively by Messrs. J. C. Thresh and J. F. Brown. Dr. Tilden showed experimentally the difference between aloin from Barbadoes and Socotrine aloes. Mr. Greenish described definitely the microscopic distinctions between Natal arrowroot and all other starches, which he thinks are sufficiently marked to prevent any possibility of error on the part of competent analysts. Mr. Stoddart gave an interesting lecture on the geology of the Bristol district, which he ingeniously adapted to a pharmaceutical audience. Mr. T. B. Groves described a dispensing mystery, due apparently to chloroform; and Mr. Henry Groves contributed interesting information as to the cultivation of saffron in the Abruzzi. Mr. C. T. Kingzett added something to our knowledge of the chemistry of essential oils, and Mr. Laird, of Dundee, sent a paper describing some desiderata in the Pil. Coloc. Co. as usually sold, but as it appeared that the Pil. and the Ext. had been confused in this investigation its value was minimised.

And lastly, what shall we say of Bristol hospitality? The entertainments provided by the Local Committee were lavish, and given with a hearty good will which was manifest to every stranger. The luncheon each day between the meetings gave opportunities for conversation, and the trip to Wells and Cheddar, after the conclusion of the Conference proper, was a day to be long remembered by all who shared its pleasures. Several of the chief chemists of Bristol and Clifton had burdened themselves with portions of the labour attendant on such a gathering as this; but the central support of everybody all through the week was Mr. Pitman, and especially is this true of the twenty pharmacists who were under his immediate charge at the St. Vincent's Rocks Hotel. All present owe him a lasting debt of gratitude for the unwearying attention he gave in order to secure the enjoyment of each.

TUESDAY, AUGUST 24.

Nearly a hundred members of the British Pharmaceutical Conference were ready when the hour for meeting arrived on Tuesday morning, the 24th ult., at Bristol. The library of the Bristol Museum was kindly lent for the occasion, and formed a most suitable room. Mr. Groves, the President, took the chair a few minutes after 10 A.M., and Mr. Boorne, as Chairman of the Local Committee, addressed a few words of cordial welcome to the members on the part of the Bristol chemists. This compliment having been acknowledged by the President, Professor Attfield read a letter from the Philadelphia College of Pharmacy, offering all courtesy and assistance to such British pharmacists as might visit America next year. The American Pharmaceutical Association would hold its session at Philadelphia while the Centennial Exhibition was there, and members of the British Pharmaceutical Conference were invited to make the College Building their head-quarters during their visit. Mr. Brady spoke of the lavish hospitality and great kindness which he had received from American pharmacists a few years ago, but he recommended intending visitors to go provided with credentials, as the association there was very particular on that point. Professor Attfield said he would furnish such credentials to any member of the Conference who might be going. Mr. Brady proposed, and Mr. Carteighe seconded, a vote of thanks to the Philadelphia College for their courteous invitation.

Attention was then called to the manuscript of the Year Book, which was on the table, and also to all the volumes of Watt's "Dictionary of Chemistry," which had been purchased out of the "Bell and Hills" fund, specially bound, and presented to the Bristol Pharmaceutical Association. Mr. Boorne acknowledged the gift, and said that though the association had not a library at present, he trusted these volumes would form the nucleus of one.

Mr. Benger read the report of the committee, which showed that during the first 11 years of its existence the association had, at its annual meetings, made a clear addition of upwards of 250 original researches to the common stock of chemical and pharmaceutical knowledge; had organised in different parts of England four exhibitions of objects of interest relating to pharmacy; had latterly presented to every member, in return for his subscription of 7*s.* 6*d.*, a year-book of 600 pages of abstracts of researches published at home and abroad; and had now gathered into membership, and thus permanently excited their interest in its department of applied science, nearly 3,000 workers in pharmacy.

The report alluded to the death of Mr. Daniel Hanbury, and also expressed a hope that the recent establishment of a Pharmaceutical Society in Ireland would develop the latent pharmaceutical talent of the sister isle, and open a new source of contributions for the Conference.

The financial statement, which was read by Mr. Schacht, showed a balance in hand of 239*l.* 1*s.* 2*d.*, against 3*l.* 8*s.* 9*d.* last year.

THE PRESIDENT'S ADDRESS.

The reports having been accepted, the President delivered the following address:—

In proceeding a second time to address you from the highly honourable position of the presidential chair, I feel compelled to allude to special circumstances investing this meeting of the British Pharmaceutical Conference with peculiar interest. We may, first of all, congratulate ourselves heartily that we are again united to our elder brother, the British Association for the Advancement of Science, and that circumstances do not now, as they did last year, impose an obstacle to that fraternal companionship. A meeting of the Conference in a provincial city, no matter how distinguished for devotion to our particular art, would, without such inducement to attendance, be, I fear, a comparative failure. Fortunately, we last year were spared such a reproach by the fact that the *locus in quo* was the metropolis and our entertainers the Pharmaceutical Society of Great Britain. How nobly the latter performed their part has already been acknowledged by individual members of the Conference and by the pharmaceutical press, yet I would not omit the present opportunity of again testifying how deeply we are indebted to the Pharmaceutical Society for the timely and generous help afforded in what was really a time of embarrassment and need.

A second subject of congratulation is the fact that we are assembled in the ancient city of Bristol, that place of all others where good pharmacists abound, and where is exhibited the, I fear, solitary instance of a thriving, long-established and growing provincial pharmaceutical association. It is much to be regretted that the efforts made in other places to found similar institutions should have so generally failed as regards permanency. As a rule too much has, I think, been attempted. Provincial schools of pharmacy, except they be in connection with a medical school, cannot be made self-supporting, when the students are drawn—as a rule they must be—from limited areas, where the attendance of classes can be combined with a reasonable amount of labour in the pharmacy. When the latter condition cannot be assured, and students in order to obtain systematic teaching are compelled to give up their situations, they will naturally gravitate to the larger centres, where circumstances are more favourable, and the course of instruction more complete.

Since our last meeting we have witnessed the inauguration of what bids fair to be a worthy specimen of a provincial association. I refer to that established for the benefit of Wolverhampton and its district. Let us hope that under the guidance of its powerful directory it will succeed in avoiding the shoals upon which not a few of its predecessors, that commenced their voyage with equal promise, have been stranded.

The less ambitious pharmaceutical associations very generally find it difficult to maintain the interest of their evening meetings and provide subjects for discussion. On that point I will venture a suggestion. It is comparatively rarely that I have an opportunity of attending the evening meetings of the Pharmaceutical Society; when I do I find almost invariably the following scene enacted. After the more formal business has been disposed of, the paper or papers of the evening are read, and discussion upon them invited. The invitation is at once responded to by the professors, who, from the fact that they know more about the subject than probably any others present, and from their acquired habit of speaking diffusely, as when addressing students, occupy so large a share of the time at the disposal of the chairman, that before the questions have been half threshed out, that functionary looks nervously at the clock, and, expressing a fear that if gentlemen are detained too long they will not readily put in a second appearance, dismisses the assembly.

My suggestion is this, that instead of insisting on something entirely new, they should more frequently than is now the case take up half-debated questions where the Pharmaceutical Society dropped them, and not leave them to be completed by letters to the editor of the journal, or by furnishing to that periodical a supplementary article. How much better to do this than, confessing one's poverty of resource, to implore the aid of a neighbouring medico and receive from him well meant but scarcely disinterested advice on how to conduct a pharmacy, or a lecture on a medical subject but remotely connected with the duties of a pharmacist!

Next to associations directly affiliated with pharmacy must be ranked those that aid it indirectly by fostering the sciences, or some of them, upon which our art is based. The pharmacists of Yorkshire are to be congratulated upon the establishment of the Yorkshire College of Science, where will be, in fact are, methodically taught experimental physics and chemistry, both practical and theoretical, by able professors on moderate terms. Pharmaceutical students who observe the signs of the times will not be slow to avail themselves of such advantages, and should any want reminding, the honorary secretary of the college, our late joint secretary, and, may I hope, future president, Richard Reynolds, will not fail to do it. Under such auspices the success of the Yorkshire College of Science may be regarded as an accomplished fact, and it may in addition be said that every member of the Conference will feel a personal interest in its prosperity.

An institution of a still more ambitious character has been projected—as yet it is only a project—for the West of England and South Wales. It is to be called the School of Science and Literature, and will be carried out in connection with certain colleges in the University of Oxford. As its name implies, it is intended to provide for the field embraced in its operations a literary as well as scientific education, the latter being directed especially to the industrial wants of the important manufacturing and mining district of which Bristol may be regarded as the centre. The School will, therefore, bear a close resemblance to Owen's College, Manchester, and be, like a similar institution in Newcastle, connected with one of the universities. Probably no provincial city equals Bristol in the extent and variety of its museums, libraries, and other aids to mental cultivation; it has, therefore, been rightly selected as the site of the new college. Part of the funds required for the carrying out of the scheme have been promised by Balliol and New Colleges, Oxford, and for the remainder an appeal is being made to the public. In this part of the work pharmaceutists will probably not take a prominent part, yet it is satisfactory to find on the list of the Provisional Local Committee the names of our energetic and able *confrères*, Messrs. Stoddart and Schacht, whose efforts in so good a cause we all, and especially the local men, hope to soon see crowned with merited success.

The trustees of the Gilchrist Fund, whose secretary is Dr. Carpenter, have at their disposal no less than 4,000*l.* per annum, which by the terms of the trust deed they are bound to devote "to the benefit, advancement, and propagation of education and learning in every part of the world, as circumstances permit." One thousand pounds of it has been placed in the hands of the Royal Society to be expended in grants to men of proved ability in scientific research, to enable them to prosecute investigations of an expensive character, which without assistance they would not be justified in undertaking. It would be worth consideration whether scientific institutions such as those I have mentioned are not justified in asking the trustees to lend a helping hand to them during the few years of struggle that with the best of management generally precede success.

The question so often debated at this Conference (introduced originally, I believe, by Mr. S. Atkins, the present Mayor of Salisbury), as to the desirableness of transferring the conduct of the Preliminary Examination from the Board of Examiners to the College of Preceptors, has at last received its solution. At the April meeting of the Pharmaceutical Council it was decided, by fifteen votes to two, on the motion of Mr. Atherton, "that the questions for the Preliminary Examination after the present year be prepared and reported on by the College of Preceptors." The society does not give up its control over this examination, which would not be desirable, but will still continue to issue the questions, direct how, when, and where the examination shall be held, and doubtless interpose should the questions set seem inappropriate.

Early closing has received this year a greater amount of attention than usual, and powerful pens have been enlisted on either side in conducting the controversy.

It would be voted perfectly absurd were one to state the naked proposition that because the occupation of a dispensing chemist is, of all trades, the one that requires the most strict attention to accuracy, the greatest amount of mental effort, and is consequently the most exhausting, that, therefore, the said dispensing chemist should be kept at work for several hours longer than any other tradesman, except, I should explain, the publican. But the latter has some excuse—with him it pays; the chemist, on the other hand, rarely earns after nine o'clock the cost of the extra gas he burns. How strong an instinct of trade must possess him, and how ridiculous to talk of the "profession" of pharmacy under such circumstances. We are, however, improving in this respect, and London is setting, as it ought, a good example. Thanks to the efforts of a few leading pharmacists, arrangements have very generally been adopted by which the principal establishments are closed at a reasonable hour, varying necessarily somewhat, according to circumstances, but, as a rule, affording fair opportunities for recreation and for preparing for the now inevitable examinations. To afford facilities for procuring necessary medicines, at any time of the day or night, is the duty of a pharmacist, but it is not essential to this that the shop should be kept open, with lights burning and assistants in waiting, inviting apparently what ought to be conceded as a matter of favour rather than right.

At the July meeting of the Pharmaceutical Council, Mr. Schacht introduced a subject which seems to me one of extreme interest and importance, as it concerns the teaching of practical pharmaceutical chemistry as distinguished from the mere compounding and retailing of drugs, which ordinarily is the sole occupation of the so-called pharmaceutical chemist. It is quite true, as Mr. Schacht said, that very few students have had the advantage of working in a well-appointed laboratory during their apprenticeship, and therefore the more desirable is it that the opportunity should be afforded them whilst passing through the curriculum at the Square. The rarity among pharmaceutists of laboratories, even on the most moderate scale, is much to be deplored, and anything that would lead to their multiplication would, I am sure, tend greatly to the improvement of pharmacy and the raising of the status of pharmacists. The difficulty as regards space is often nearly insuperable, but I would remind those really in earnest that a laboratory cannot be too near the roof, and that should there not be space enough immediately under it, that the roof can be raised, as I myself have been compelled to do under the circumstances. But the space having somehow been acquired, how is it to be fitted with suitable apparatus? Your local tradesmen will here be of little use to you. They will be ready enough to execute your orders and even make suggestions, but you will be fortunate if you get what you want before two or three reconstructions. A good model pharmaceutical laboratory, established at the Square, would be not merely a laboratory for the students to work in, but a museum of pharmaceutical apparatus, where one could see at work every piece of apparatus likely to be required, could judge for himself of their usefulness, obtain information as to their cost, and ascertain where they could be procured.

Manufacturers would be only too glad to send their goods on exhibition to such a place, and the result would, I believe, be found highly beneficial to all parties. I was sorry, therefore, to observe in the report of the last meeting of the council that the committee to which the subject was referred was of opinion that it was not at present advisable to take any step in the matter.

The introduction by Sir Michael Hicks-Beach and the Attorney-General for Ireland of an Irish Pharmacy Bill, framed, I would observe, without consultation with the Pharmaceutical Society—whose interests it seriously affected, and of whose political power these gentlemen seemed quite unaware—has fortunately ended, after an infinite amount of negotiation and agitation, in the establishment of an independent Irish Pharmaceutical Society; independent, I should observe, as regards ourselves, but most surely dependent on the Apothecaries' Company of Ireland, a contingency which seems not to have troubled our Celtic friends in the least, and need not concern us, except that it will in all probability have an injurious, if not destructive, influence on the future value of the title "pharmaceutical chemist," which, after a weak protest from the Pharmaceutical Society of Great Britain, has been conceded to the new society. One may be sure that the apothecaries will not put the examinations too high; in fact it is optional with them whether they have more than one, in which case it must, in order to render the Act in any way operative, be of the character of our Modified, so as to admit the class of chemists and druggists. Now no one fears an irruption of Irish pharmaceutists; that would be impossible, without they first passed both the Preliminary and Minor of the English Society; but this may happen when the title "pharmacist," and its numerous and distracting aliases, become of sufficient value—the English Minor examinee, if sufficiently unscrupulous, may take a trip across St. George's Channel and there obtain the coveted initials without any further tax on his mental powers. He perhaps may have to add to them the initial I, or the word Ireland. Those skilful in arithmetic may amuse themselves by calculating how long it would take the British public to learn to discriminate between the title with and the title without the I, seeing that up to the present time they have failed to see any distinction between Member of the Pharmaceutical Society and Pharmaceutical Chemist. We have saved our "purse" and lost our chance of some day achieving a "good name."

The fourth International Pharmaceutical Congress, which met at St. Petersburg shortly after our last meeting of Conference, appears not to have quite satisfied the anticipations of Englishmen, who, as a rule, are not distinguished for their love of symmetry, method, or completeness, and consequently are unable to share the feeling of those who, like the French, enter with zest into minutiæ that would appear to them but trivial and troublesome. It is amusing, when reading the report, to observe how tenderly the susceptibilities of the Russian Government are treated. For instance, the question, "Ought women to be allowed to practise pharmacy?" was withdrawn from discussion altogether. Another question: "Is it *indispensable* that the chair of pharmacy should be occupied by a pharmacist?" was put in the doubtful form for the same reason, although no one present had the least doubt upon the subject, and resolutions affirming its desirableness were duly voted. The discussion of the limits of the responsibility of the principal and his assistant respectively issued in the passing of a resolution to the effect that the principal ought to be held liable for the quality of his drugs and preparations and for all infractions of the law either by himself or his subordinates with his consent. Then commences the exclusive responsibility of the assistant, who is liable in his own person for the mistakes he commits, and of course also for wilful infractions of the law. This seems very fair, but it must be remembered that by the term assistant is not meant an errand boy, advanced to a position at the counter, but a regularly educated and examined student of pharmacy.

The last question is that which has interested us most, and caused, alas, the most decided feelings of disappointment—"Has the time arrived for the preparation of an International Pharmacopœia?"

The previous Congress of Vienna had somewhat anticipated the answer to be given by requesting the Société de Pharmacie de Paris to prepare a project for the work in question, and accordingly M. Méhu, the French delegate, presented to the Congress a huge manuscript as the result of its labours. This having been remitted to a commission for examination, in due time five propositions were voted, the first of which declared that the time had arrived for the preparation of an International Pharmacopœia; that such Pharmacopœia should in no ways suppress national Pharmacopœias, but, that when new editions of these works were required, the general principles and directions of the International Pharmacopœia should be inserted in them without modification. Mr. Sutton estimates the size of the report when printed at half that of the Codex of 1866. The preparations in the Pharmacopœia proper, numbering over 300, are intended to form the basis of every Pharmacopœia and supersede similar preparations of the same name, and to them may, it seems, be added the special remedies thought necessary by each individual nation. A vast number of these so-called preparations are definite chemical substances, such as acetate of morphia, acetate of potassium, acetate of sodium, &c., which surely do not call for international interference. We are also to have international lard, butter of cacao, and cane sugar, whilst plasters and ointments are inserted by the score, the majority of them being unknown to the British Pharmacopœia. Mr. Sutton was not far out when he stated his opinion "that it would be at least twenty years before the work could be brought to fruition." But that is not what Englishmen expected; they wished, as I believed, that a general agreement should at once be come to as to the strength of a limited number of the more potent remedies, which might, if thought desirable, be introduced into the national Pharmacopœias, and until then should be known and recognised as "international" remedies. Thus we should have Tinct. Opii (Int. Ph.), Acid. Hydrocy. Dil. (Int. Ph.), and so on. If such an idea could be carried out there are not a few British pharmacists who would at once arrange a shelf for the international remedies. The principles upon which the committee recommended that the future Pharmacopœia should be constructed are such as will meet with a very general assent. They are as follow:—The use of the Latin language, the decimal system, uniform system of nomenclature, conciseness of description, indication of the minimum of active principles for each poisonous drug, simplicity, as far as possible, in the composition of galenicals, indication of the maxima of impurities to be tolerated in chemicals.

It may be taken, I presume, as a matter of course that the indication of extreme doses will be made compulsory on the prescriber, as is the case now in Germany and elsewhere. It is much to be regretted that the action taken in the matter by the Conference last year has hitherto been fruitless, much to the annoyance and discomfort of both dispensers and prescribers, and also, it is to be feared, to the danger of patients—not so much of their getting a poisonous dose as of their getting a safe one, and less than the prescriber intended. We must not give up the idea, however, but when the time comes for the revision of the Pharmacopœia, urge it forcibly upon the General Medical Council, and upon the Government if necessary.

Taken as a whole, I fear that the Fourth International Pharmaceutical Congress has, by entering too fully into minutiæ—attempting, in fact, too much—postponed indefinitely the achievement of the universal Pharmacopœia. It still may fall back as a last resource on the amusing proposition of some of its members, and by the fusion of the French and German Pharmacopœias, hope for a good result!

The numerous *résumés* of the scientific work of the year to be found in various publications, and notably in our own "Year Book," render it unnecessary for me to attempt anything like a complete account of work relating to pharmacy; indeed, it would be a work of supererogation to indicate another royal road to that branch of knowledge. I shall, therefore, content myself with referring to some few of the more remarkable facts and discoveries that have been brought to light since our last meeting.

It may, I think, with truth be said that we have had during the past year an unusual number of additions made to our list of drugs, and that not a few of them seem destined to take a more permanent place in the practice of medicine than falls to the lot of the great bulk of new remedies, which, although vaunted highly by their discoverers or promoters, enjoy, as a rule, but a short-lived popularity, and fail to justify their pretensions to supersede the better known and trusted remedies that have come down to us from the time of Dioscorides.

It is no easy matter for a drug to find its way into a pharmacy, more difficult still for it to achieve the honour of a place in the national Pharmacopœia, most difficult of all for it to engage the attention of the ordinary apothecary, and take a place in his list of "good things." Yet this crowning dignity may with safety be prophesied of jaborandi, salicylic acid, and perhaps some others.

The extended commerce of this country, the possession of numerous colonies, the propensity for foreign travel that characterises the Englishman, conduce to bring to our markets a greater number, probably, of new productions, vegetable and mineral, than fall to the lot of the whole world beside.

It is to be feared that not a few of these novelties fail to excite a due degree of attention, are never tested with scientific accuracy, and so fail to achieve the position they deserve. Others, again, fall into the hands of speculators, are puffed inordinately, and, having thus obtained a spurious currency, are finally abandoned as worthless. Condurango is an example that will occur to every one of a remedy thrust without any justification of merit upon the attention of the medical faculty, raising, it is to be feared, false hopes in the breasts of the afflicted, and causing the loss of valuable time in the treatment of disease.

Were it possible to find a sufficient number of competent physiologists to investigate and report on the action of new remedies as soon as introduced, a vast amount of good might be effected, charlatanry would be exposed, and an end summarily put to the false pretensions of unscrupulous speculators, to whom not even disease is sacred.

It is, I suppose, hopeless to expect to find in the ranks of hard-worked medical men experimenters able and willing to cope with the great amount of this kind of work, which may be said to be daily and hourly accumulating. Take such a series of investigations as those of Wright on the alkaloids, where, in a single page, we may find described perhaps half a dozen bodies of definite composition, distinctive crystalline form, and endowed with potencies differing both in kind and degree each from the others. What proportion of substances such as these are adequately tested, how many are not tested at all, possibly to the great loss of medical science? Parliament has more than once voted 2,000*l.* to defray the cost of investigating the sources of certain diseases of an infectious character, and it would, I think, not be amiss to ask it to supplement the grant in future years with another 2,000*l.* to defray the cost of the physiological testing of new remedies proposed for the treatment of disease generally. The appointment of such a commission would also enable one at once to grapple with that monster evil, the unrestricted sale of the so-called patent medicines. Patent they are not, they are the reverse of it—secret. I would make them in fact what they are in name; their composition should be divulged to the commission, and some control thereupon exercised upon the publication of advertisements respecting them. It would not, of course, do to license puffs of any kind, but the power of preventing the more scandalous and destructive of the lies from being obtruded on one's attention from every hoarding and almost every publication should be vested in some one. Care for the public health demands some interference; for example, with the sale of certain hair restorers, which, vaunted as not being dyes and uninjurious, are found when chemically examined to contain poisonous combinations of lead. Indeed, there is scarcely a chemist or a doctor who could not adduce from his own experience instances of their poisonous action on the persons of their customers or patients. Another glaring instance is that of the "sure cure for the opium habit,"—it was found to contain per dose two grains of sulphate of morphia, to be taken three times a day. I will not pursue the subject further than to suggest the patent medicine question as a hopeful one for any Member of Parliament in want of a hobby to get astride upon.

Jaborandi, first introduced to the notice of Europeans by Dr. Coutinho, of Pernambuco, deserves certainly the premier place among the new remedies of the year. Rarely has it happened that so much attention has been lavished on a new product, whether of vegetable or mineral origin; this being probably due to the extremely marked character of its action, and the fact that it came opportunely to supply the want long felt of a direct acting and trustworthy sudorific.

Its name, a most barbarous one, is applied in its native country, Brazil, to a class of remedies possessed of sudorific, stimulant and sialogogue properties, hence the difficulty experienced at first by botanists in determining the true source of the remedy, a difficulty enhanced by the fact that the leaves and twigs, of which the first importations consisted, were not in a satisfactory condition for examination. M. Gubler was, however, enabled to decide at once against their piperaceous origin (though it is certain that that order furnishes some of the plants to which the name jaborandi has been applied), and, assisted by M. Baillon, assigned them to the Rutaceæ—to *Pilocarpus pennatifolius*. Several botanists in this country also carefully examined them, and Mr. Holmes, of the Pharmaceutical Society's Museum, having fortunately obtained fruit-bearing specimens, was enabled authoritatively to state that the plant was rutaceous, and of the genus *Pilocarpus*. As to the species it was thought premature to attempt its identification before the receipt of well authenticated specimens of the flowers.

As chemists, we of course have little to do with the physiological action of drugs, except when regarded as an aid, and a very important one it often is, to identification of species or determination of quality, yet one cannot omit referring to Mr. Martindale's bold experiment upon himself, and the interesting account of the result which he sent to the *Pharmaceutical Journal*. The subject has been practically exhausted by the labours of Dr. Ringer in this country and Professor Gubler in France.

The chemists were not slow to perceive nor backward in working the new field of inquiry opened to them. In January, 1875, Parodi communicated to the Revista Farmaceutica of the Pharmaceutical Society of the Argentine Republic the results of his examination of the jaborandi used by the natives of Paraguay. From the leaves and spikes of this plant he succeeded in extracting an alkaloid of feeble basic properties, which he, using his right as a discoverer, named jaborandine. It was obtained in prismatic crystals belonging to the rhombic system, and in a sufficient state of purity, it seems, to justify its combustion and the adoption of the formula $C_{20}H_{12}N_2O_6$. From the description which he supplies of the plant he used it is certain that he did not employ true jaborandi, as we understand the term, but a species of *Piper*. It is therefore unfortunate scientifically that he should have chosen for its alkaloid the name he did; on the other hand it is comforting to reflect that in consequence of his mistake our ears will be spared the infliction of a word eminently cacophonous. In March, M. Byasson submitted to treatment a sample of the true drug obtained from the fountain-head, Dr. Coutinho, and obtained therefrom a small quantity of a substance of alkaloidal character possessing the characteristic activity of the parent drug. He described it as a liquid, viscid, aromatic alkaloid, having an acrid and bitter taste, and capable like nicotine of being carried over with water by distillation. He called it jaborandine, but, leaving out of the question the prior adoption of that name by Parodi, he was scarcely justified in giving a name at all to a substance so ill-defined and of which he could tell so little, either of its physical or chemical characters.

In May, Mr. Gerrard indicated a simple method of extracting from jaborandi an alkaloid which, in accordance with Mr. Holmes' advice, he named pilocarpine, and in June he was enabled to announce the crystallisation of its nitrate in sufficient quantity for the determination of its more important reactions, and to fix its dose at half a grain as a medium quantity. Dr. Attfield will, I hope, be able to give us the rational formula of this substance, derived from combustions, which I understand he has undertaken to perform.

English pharmacists will then have reason to feel proud of the share taken by them in the elucidation of the interesting problems connected with the introduction of jaborandi. Of course there is plenty of room for further experiment. In all probability more than one alkaloid is present, and it might be discovered that the sialogogue and sudorific properties are resident in distinct substances. Should this be the case it would be most fortunate, as the simultaneous production of extreme salivation and perspiration seems to be the "amari aliquid" of the administration of the new drug.

The Brazilian drugs recently presented to the Pharmaceutical Society by Messrs. Cyriax and Farries, and reported on by Mr. Holmes, contain among them several that seem to call for further inquiry and examination on the part of pharmacists. It seems, indeed, that South America, to which we are indebted for some of the most destructive diseases, is endeavouring to balance the account by providing the means of effecting their cure.

The statement respecting butea, "that it contains a basic substance which, combined with sulphuric acid, is white, almost like that of cinchona, and is exported to Europe in great quantities to adulterate quinine," deserves to be taken note of, though one part of it seems highly improbable.

Erva de Rato, a cinchonaceous plant used in Brazil for killing rats and mice, exerts, it is said, on the heart an action similar to that of digitalis. This statement certainly deserves careful examination; should the action not be identical, probably it is only similar, it might furnish another means of alleviating a class of disease of a peculiarly painful and hitherto intractable character.

To Dr. Fayrer, of Calcutta, is mainly due the introduction to European medical practice of Goa powder, called also Bahia powder, and Araroba powder, a potent remedy in certain skin diseases—herpes, circinatus, chloasma, &c. This, too, has a Brazilian origin, and seems to have been an article of export from Bahia to Goa when both were Portuguese colonies. Its origin long remained a profound secret, and its employment was confined to those irregular practitioners of medicine whose untrammeled intellects have so often opened a path for the more staid and methodical practitioners of the schools. Dr. J. F. da Silva Lima has traced the substance from its place of production to its place of sale, and made evident the fact that the Goa, Bahia, and Araroba powders are one and the same, and the produce of a leguminous plant growing in Bahia, where several species of it are to be found, all, with characteristic Brazilian indifference, called by the same name, "araroba," or tawny-coloured. Some plants of Araroba are now, thanks to Dr. Da Silva Lima, growing in the Royal Botanical Gardens of Edinburgh, so that it will not be long before botanists will be able probably to give a complete account of the true source of this interesting remedy. Professor Attfield, in a paper read before a meeting of the North British Branch of the Pharmaceutical Society of Great Britain, described fully the chemical characters of the pure powder sent to him by Mr. David Kemp, of Bombay, by whom it had been christened, with the view to doing away with troublesome synonyms, chrysarobin. The one remarkable fact connected with a most patient and able analysis is this, that chrysarobin contains from 80 to 84 per cent. of pure chrysophanic acid. This acid, long known as a constituent of rhubarb roots, *Parmelia parietina*, and perhaps also senna leaves, had never been suspected of possessing powers such as now it must be credited with. Should the price of chrysarobin ever become disproportionately high, it will always be possible to revert to its active principle, derived from well-known and native sources; but that contingency seems remote, as, according to Dr. Da Silva Lima, it is obtainable in Brazil in any reasonable quantity. Possibly its wonderful properties as a dyeing material may eventually be made use of. It is a singular fact, referred to by Mr. Holmes in his paper on the identity of Goa and Araroba powder, that dock-root, a well-known but poor source of chrysophanic acid, was used in the time of Gerrard for the treatment of certain skin diseases, and Professor Bentley affirms that it is still used in Sweden for scurvy, and in many cutaneous disorders.

Gurgun balsam, a fluid oleoresin, obtained by incisions of the bark of *Dipterocarpus lævis*, has until recently been regarded solely as an object of suspicion and a possible adulterant of copaiba. It now is in a fair way of being recognised as a most valuable agent in the treatment of skin diseases, and especially of that most horrible one, leprosy. Dr. Dougall, a medical officer of the Indian Government, first conceived the idea of so employing it, and having observed decided mitigation of the worst symptoms of the cases first experimented upon, carried out on an extensive scale a series of trials of the remedy at the Haddo Leprous Hospital, Andaman Islands. In his report to Government he gives details of the remarkable results of the treatment, leaving no doubt that the doctor has hit upon a most valuable agent, which renders tractable a most loathsome disease, that hitherto has defied human efforts at removal, and it may almost be said of alleviation. The balsam emulsed with lime water is given to the extent of twelve drachms daily, and at the same time the whole body is anointed with a similar emulsion night and morning. The Indian Government attaches so much importance to the discovery that it has instructed the keeper of medical stores at Calcutta to collect a large supply of the balsam, for distribution wherever competent persons can be found to administer and report upon it. The issue of these reports will be awaited with interest, more especially since the balsam has been found by so trustworthy an observer as Erasmus Wilson to exercise a beneficial influence in the treatment of a disease of equally painful character affecting Her Majesty's European subjects, viz., cancer.

More than fifteen years ago, Kolbe and Lautermann demonstrated the possibility of preparing from carbolic acid the then little esteemed salicylic acid. The process adopted was one suggested by Wanklyn, who in the same year discovered that when carbonic acid was passed into sodic alcohol propionate of soda was formed, and similarly, when methylic alcohol was used instead of ethylic, acetic acid was the result. More recently the reaction has been carefully studied by Kolbe with the view of procuring the acid at a cheap rate for the economical uses which Professor Kolbe was the first to recognise in it. He imagined that, seeing their easy convertibility, the two acids, carbolic and salicylic, might probably be endowed with similar physiological properties, and that idea he has since fully demonstrated the truth of by experiment. As an antiseptic, salicylic acid is a formidable rival to carbolic acid, preventing and destroying with equal certainty the action of both organised and inorganised ferments. Thus it destroys the activity of the alcoholic ferment in saccharine fluids, and the ammoniacal ferment in solutions of urea, whilst it equally prevents the decomposing action of emulsion on amygdalin, and of synaptase on myronic acid. Its power as an antiseptic when used instead of carbolic acid for the dressing of wounds is considered by Mr. Lister to be scarcely equal to that of the latter substance. This inferiority possibly depends on its less volatility, which, whilst offering the advantage of absence of disagreeable smell, entails the disadvantage of limiting seriously its action on the atmosphere surrounding the diseased surface. On this account we may expect that as a general disinfectant carbolic acid will continue to hold its ground, and that notwithstanding its extremely poisonous character, a fact of which we are now and then reminded painfully by the occurrence of loss of life through its accidental administration.

Salicylic acid, on the contrary, is comparatively innocuous, and being a solid does not invite the attention of drinkers and others too apt to conclude that a carefully hidden bottle must conceal something nice. The antiseptic action of salicylic acid is not shared with its salts, so that when the saturation of the acid accidentally occurs through the evolution of ammonia generated by putrefaction, its utility ceases, or at least is suspended until the addition of an acid sets it free again. Nothing could more forcibly illustrate the non-poisonous nature of salicylic acid than the fact that it has been recommended to be added in minute quantities to the water in which leeches are preserved. It is said that their mortality is in that way very much lessened. The future of salicylic acid seems to point rather in the direction of internal than external applications. It has been suggested as likely to be a potent remedy in diseases of zymotic character; perhaps its exhibition in conjunction with sulphurous acid would be more beneficial than when given alone, as the sulphurous acid would not only directly assist it, but, by preventing its neutralisation, conduce to the permanence of its action. Mr. Jno. Williams, at a recent meeting of the Pharmaceutical Society, exhibited oil of wintergreen (salicylate of methyl) prepared from the artificial acid, and possessing perfectly the taste and odour of the oil yielded by the plant on distillation. The methylic element was probably obtained in the usual way from wood spirit, but it would not have been difficult to prepare this from purely inorganic sources, as Berthelot pointed out some years ago.

Salicylic acid is now quoted in the price lists at 8*s.* per oz. for the natural product; 2*s.* per oz. for the artificial.

In October, 1871, Dr. Broughton, of Ootacamund, presented to the museum of the Pharmaceutical Society a very pure and interesting specimen of carbolic acid derived indirectly from the essential oil of *Andromeda Leschenaultii*, a plant that grows in inexhaustible profusion on the Neilgherrie Hills. This oil is nearly identical with that of wintergreen, and consists almost wholly of salicylate of methyl. The production of carbolic acid is effected by first saponifying the oil with potash, then adding a mineral acid, which precipitates the salicylic acid in a state of purity, and finally distilling the dry acid with lime and sand. The result is pure carbolic acid which crystallises at once on reaching the receiver. Dr. Broughton calculates that by pursuing this method pure carbolic acid could be produced at from five to seven shillings per pound. It is obvious that by dispensing with the last operation, and stopping at salicylic acid, that acid could be rendered at a price considerably less than the figures I have quoted—possibly at 4*s.* per lb. Here then is a hopeful source of a cheap and pure supply of this valuable drug. I have written to Dr. Broughton with reference to it, and hope to have in time for this Conference a note from him respecting it. Dr. De Vrij has also pointed out a new source of oil of wintergreen—*Gaultheria punctata*—a plant growing in great abundance in Java, and yielding on distillation as much as 1·15 per cent. of crude oil. This might possibly be similarly utilised.

Mr. John Williams, who has so often contributed to our "Transactions," recently read before the Chemical Society an important paper on a physical subject of the highest interest, viz., the graduation of thermometers. The scale adopted by Fahrenheit seems to be purely arbitrary, unless, indeed, he fancied some connection to exist between the interval between the melting and boiling points of water and the number of degrees in a semicircle. Such an idea would not seem absurd 150 years ago. His assumption that no lower temperature than that caused by mixing ice and salt could be produced was of course incorrect, and why he numbered 32 degrees between that, his zero, and the melting of ice, is not apparent. However, his mode of graduating held its ground until the introduction of the centigrade method, which divided the interval between the boiling and melting points into 100 degrees, and started from the latter point as zero. The division was certainly decimal, if that be an advantage, but beyond that the only real improvement was the establishing the fact that all minus numbers represented degrees below the freezing point of water. On the other hand it entailed the disadvantage of lengthening the degree and necessitating the frequent use of fractional numbers.

It was the consideration of these inconveniences that first induced Mr. Williams to think of a remedy, which he found in taking for his scale the interval between the boiling and freezing points of mercury and dividing it into 1,000 degrees. Hence the name he has given it, the milligrade.

According to Dulong and Petit mercury boils at 360° C., and freezes at 39·44° C. The interval is therefore nearly 400° C. Probably this number is quite as accurate as 399·44°—it cannot be supposed that either is absolutely exact. The whole number being adopted, it follows that $2\frac{1}{2}$ degrees milligrade equal 1 degree centigrade. The following curious results are obtained on carrying out the necessary calculations. The freezing point of water is 100° M.; the boiling point, 350° M.; the interval, 250°, being just one-fourth of the interval between the freezing and boiling points of mercury. This last coincidence had not, I believe, been noticed before, but it would, of course, be the same for any graduation whatever. Benzole melts at 100° M., boils at 300° M. Nordhausen sulphuric acid melts at 100° M., boils at 200° M. Bihydrated sulphuric acid melts at 122·5° M., boils at 622·5° M., the interval being exactly 500° M.

Many of the volatile metallic chlorides, such as those of arsenic, antimony, &c., have intervals between their melting and boiling points which appear to have some simple relation to the interval between the melting and boiling points of mercury. However, the great points achieved, and these are independent of all theoretic considerations, are the shortening of the degree, thereby lessening the frequency of the employment of fractional numbers, and the abolition for all temperatures above that of the freezing point of mercury of minus numbers. It would be too sanguine to expect the milligrade to supersede the centigrade in our day, but that there is much merit in the conception and much of interest in the results cannot be questioned.

M. Nativelle, who discovered in 1872 a method of preparing from the leaves of *Digitalis purpurea* a crystalline substance possessing the physiological properties of the plant, and which he named digitalin, has had a hard time of it lately in the defence of his position. In the April number of the *J. de Ph. et de Ch.* he repels the attacks of M. Kosmann, who had reasserted his belief that the true active principle of foxglove is an amorphous body, and affirmed that M. Nativelle's digitalin was a product of change, such as might take place, such is the instability of the true digitalin, either inside or outside the plant. To attempt to give an outline even of the results described by Nativelle, Kosmann, Homolle, Walz, and Schmiederberg would occupy much longer time than I could devote to this subject. Probably not less than a dozen definite principles, if one could believe their discoverers, would have to be examined. Certain it is one could not find *digits* enough to count them upon, and moreover the greater number of them seem possessed of toxic properties. Schmiederberg's last announcement, digitoxin, is so poisonous that he doubts whether it is fit for medicinal use. It, moreover, is completely insoluble in water, in that respect agreeing with the digitalin of Nativelle, which Schmiederberg declares to be a mixture of digitoxin and paradigitogenin. Anyhow, Nativelle was the first to produce and exhibit a crystalline principle derived from foxglove, and representing with tolerable exactness its physiological action, and while such can be obtained of constant composition and definite form, that assuredly is the article that ought to be employed and not an amorphous substance possessing no definite characters by which it might be recognised. Doubtless the more complex of the vegetable alkaloids are extremely prone to alteration, and until we know more of the true constitution of that class of bodies it will be useless to attempt to decide as to which is the mother substance of such series as are met with in foxglove, aconite, cinchona. This Conference has already made a money vote towards the elucidation of the aconite mystery, and will probably be asked for a second grant, but it would in my humble opinion be more usefully devoted to the determination of the exact chemical position occupied by one or two of the more stable alkaloids. It doubtless is very interesting to ring the changes upon such a substance as morphia, but this might go on for ever, and I have failed to perceive that up to this time any consensus of opinion has been arrived at, on what may be termed the previous question—what is an alkaloid?

It would not be difficult to extend this imperfect notice of the science of the year to a great length, but experience warns us not to devote too much time to the preliminaries of our Conference. I had intended giving a *résumé* of the very interesting controversy on the question of ferments, of which the last word was spoken by Pasteur, in April of this year. The debate was sustained during a number of years by such men as Pasteur, the author of the modern theory of ferments, Fremy, his chief and not altogether ingenuous opponent, Dumas, Liebig, Berthelot, Bechamp, Lechartier, and Bellamy, and therefore could not fail to be instructive. But the mass of materials collected could not be reduced within such limits as to allow for the introduction of other subjects of more immediate importance.

I, therefore, reluctantly pass on to the least agreeable part of my task, the record of the loss we have sustained by death during the year. And that loss, I refer to that of one only, is truly enormous, and I fear irreparable. In the later numbers of the issue of the *Pharmaceutical Journal* (of March 27) appeared a short announcement of the death of Daniel Hanbury, and such was the reluctance to believe news so disastrous that it was, I believe, very generally discredited as too bad to be true. Such, however, was the fact; Daniel Hanbury, *facile princeps* of British pharmacologists, had died on the 24th, of typhoid fever, in the prime of life, the very plenitude of his powers, and height of usefulness. His friends had looked forward confidently to the time, assuredly, as they thought, not far distant, when he would be acknowledged as the chief authority on drugs in Europe, but that was not to be. The fatal hour had struck, he had joined the ranks of "those other living called the dead," and as if to show the vanity of earthly things, the vast stores of knowledge which his active mind had accumulated were at once lost to his friends and the world. It was this sense of loss, a selfish one I admit, that at first overbore every other feeling—one could not help asking the question, To what purpose is this waste? Who is there left to whom the perplexed student can appeal with certainty of a courteous reply, and an indication where recondite information is to be found? The marvellous knowledge of books he possessed, and his methodical way of conducting his reading of them, made his friendship in that respect invaluable. Able and willing as he was to communicate information, he was not above taking the opinion of those he considered better informed on special subjects than himself. The consciousness of power did not inflate his vanity; he was to the last, when Fellow of the Royal and Linnean Societies, as accessible as when he worked as a student in the laboratory of the Pharmaceutical Society. The scientific journals of this country, and especially those of the Pharmaceutical and Linnean Societies, contain abundant evidence of his painstaking assiduity and conscientious use of mental powers of a high order. Most fortunately for us and for his own fame, he had in the previous year, in conjunction with his friend Professor Flückiger, completed the "Pharmacographia," which will ever remain a worthy monument to his memory. Without wishing to detract in any way from the merit of his collaborator, it is evident that the work was very greatly indebted to Mr. Hanbury's researches, and especially to the correspondence he had established in all parts of the world, and by means of which he had succeeded in solving so many pharmacological mysteries. Not a few young men now occupying positions of importance owe their success in life to his kindly help and wise counsel, but these cases, though not rare, were rarely heard of. In his acts of charity he observed strictly the injunction—let not thy left hand know what thy right hand doeth.

As President of this Conference, Mr. Hanbury achieved a success that will not again in all probability be equalled. As a contributor to its proceedings, and to the discussions arising therefrom, his aid was invaluable. In the latter capacity he was unrivalled, as he could generally manage in a few well-chosen words, and those not hastily put forward, either to give himself or elicit from others the information that seemed wanting to complete the knowledge of the subject before the meeting.

His work as a member of the Pharmaceutical Council and as an examiner I need not refer to here, except in order to express a hope that his services will secure him a place in the Walhalla of pharmaceutical worthies by the side of his predecessor, William Allen.

The address was listened to with very close attention, and many of the passages were warmly applauded. Mr. **Boorne** moved a vote of thanks to the President for it, and in doing so said he would like to refer to one point which had been touched upon in the address. That was in reference to what had been said about prescriptions of extreme doses. He remembered as an apprentice receiving a prescription in which three drachms of potassio-tartrate of antimony were ordered. On referring to the prescriber it turned out that the liquor was meant. Another time, in London, left in charge of the business, a prescription was brought by a gentleman's servant at 3 A.M., in which three grains of hydrochlorate of morphia were ordered for a dose. Doubtful as to the course to be adopted, he decided to give two grains, and spent the rest of the night in apprehension of a coroner's inquest. The dose given might have been too much and the patient might be killed; or it might have been too little and the prescriber's intention thus defeated. It turned out that three grains were really meant. Had there been a special mark on the prescription to indicate this all doubt would have been dispelled.

Mr. **Young** (Edinburgh) seconded the proposal. The address was an admirable *résumé* of the pharmaceutical history of the year, treated with great freshness. Many with grey hairs felt it sad to listen to the elegy on Daniel Hanbury, and he was gratified at the manner in which the President had done justice to their lost friend's memory.

Mr. **Groves** having acknowledged the vote, Mr. **Hills** said he should like to remark on one point to which the President had referred. If the Pharmaceutical Society did not secure such good papers as did the Conference, that was the fault of their friends who would not come forward. He would be glad to have papers from all present, and he would promise not to look at the clock, as Mr. Groves had described. Mr. Hills said he had not missed more than four meetings for the last thirty-three years. He was never influenced by the quality of the paper which was to be read, for he always got information, and he advised others to do the same. As to the Irish Pharmacy Bill, the council had done all that was possible, but this world was made up of compromises. At first they were told that the bill should certainly be carried as it was first introduced; but they had told members of parliament and even members of the Government that it must not pass so, and they had ultimately defeated the reciprocity clause. He did not think the Irish pharmacists would injure the English, and for his part he was glad the question was settled.

The reading of papers was then proceeded with. We give below a condensed report of both papers and discussions.

Linimentum Terebinthinæ Aceticum.

By W. Symons, F.C.S. (Barnstaple).

This was a short paper recommending the addition of castor, or some other oil soluble in rectified spirit, as a blending medium, to the formula for the above liniment. Professor Redwood had said last year that he had tried a good many experiments with the object of combining turpentine and acetic acid into a more homogeneous liniment. Mr. Symons suggests one or other of the following formulæ, subject perhaps to a modification of the proportions:—

No. 1.

	Parts
Glacial acetic acid	1
Spirit of camphor	2
Castor oil	1
Turpentine	2

No. 2.

	Parts
Liniment camphor	2
Castor oil	2
Turpentine	2
Glacial acetic acid	1

These should be mixed in the order given.

Professor **Redwood** said he had made some samples of the liniment from the formulæ suggested by Mr. Symons, and these were shown to the members present. The mixture did not separate at all. Mr. Symons, he thought, had very satisfactorily settled the question of the best mode of blending these ingredients. This was an important duty for pharmaceutists to undertake. A combination might sometimes be a bad one pharmaceutically, but a useful one empirically. *Ceratum saponis*, which had been rejected from the Pharmacopœia, was instanced, and Professor Redwood gave the case of a medical man who suffered much from a skin disease, and was at last relieved by an ointment given him by an old woman. This ointment turned out to be nothing else than the despised and rejected *Ceratum saponis.*

The Chemistry of the Aconite Alkaloids.

By C. R. A. Wright, D.Sc.

Professor **Attfield** gave a summary of the results obtained by Dr. Wright after an elaborate investigation into the chemistry of the various alkaloids which had been previously obtained by Mr. T. B. Groves. The paper was one of purely scientific interest, almost entirely occupied in discussing the probability of certain formulæ for these several alkaloids.

Mr. Groves, in commenting on this paper, said that the short summary which had been read conveyed but a small idea of the labour which Dr. Wright had bestowed on the subject. The chemistry of the aconite alkaloids was in a perfect maze; they seemed to change in composition under the eyes of the experimenter, and it was doubtful if the subject was worth pursuing. One thing, however, was clearly proved, that the aconitine from *Aconitum Napellus* and that from *Aconitum Ferox* were quite different bodies.

Pharmaceutical Experiments on the Bristol Rocks.

By W. W. Stoddart, F.G.S.

Mr. Stoddart gave the Conference the results of his experiments in the form of an address.

Some time ago, he said, he had published some notes on the vegetable medicinal products of the neighbourhood, and he now proposed to remark on some of the inorganic substances to be found there. The district was a peculiarly rich one in this respect. Within ten miles of Bristol they had ores which yielded 15 out of the 23 Pharmacopœia metals. The President had lamented that many youths apprenticed to pharmacy had no opportunity of working in a proper laboratory; but he (Mr. Stoddart) thought that there was among these rocks abundant opportunity for pharmaceutical work. The occupation of pharmacy was perhaps the least monotonous of any business, but still a little variety in this was desirable. Near Bristol were three kinds of ferruginous ores, obtained from the palæozoic series. Carbonate was found at the south basis of the Suspension Bridge, but the oxides were most interesting to them as pharmaceutists. The Bristol iron ores were lowered in money value by reason of the large proportion of silica they contained. Many contained from 15 to 20 per cent. He believed the average richness of the iron ore would be about 48 per cent. He showed samples of citrate of iron, citrate of iron and quinine, and other salts which he had prepared from these rocks. Calamine was found in the Mendips, some in a state of remarkable purity. He had seen some nearly white, yielding not more than 4 per cent. of impurity. The Derbyshire calamine, he believed, was exhausted, though it was still supplied from that district. A dolomite was found in the fissures of carboniferous rocks, near Clevedon, which was a curious mixture of carbonate of magnesia and carbonate of lime, about 40 per cent. of the former being present. The remarkable point about this was that it would not effervesce with acids. If it did there was an unequal proportion of one of the salts named. Malachite, the green carbonate of copper, was to be found, and it often contained some specks of lead. He had also found some black oxide of manganese. Gold and silver, too, were to be obtained in the neighbourhood. This would perhaps be doubted, but it was most certainly correct. He had a specimen of gold found in carbonate of limestone, and he believed it had never been noticed in that formation before, it being usually associated with iron pyrites; but it was not so in this instance. He had sent samples of this limestone to Mr. Merry, of Swansea, who found eight-tenths of an ounce of silver per ton, and three grains of gold per ton. Mr. Stoddart, in conclusion, recommended those who had the opportunity to go out among these rocks and prepare some of the Pharmacopœia preparations from them. Such practice would give them very valuable experience in laboratory manipulation.

Mr. Siebold was at a loss to understand the behaviour of the magnesite which would not effervesce. He should consider such a fact out of harmony with natural laws.

Mr. Stoddart explained that it would effervesce if powdered and heated, but not by the application of a drop of acid to the lump. This observation was not original with himself. It was mentioned by Dr. Percy in his "Metallurgy."

Professor Tichborne said it might be due to the dissociation of carbonic anhydride.

Professor Attfield said that the form of crystalline structure often affected the action of an acid, and he supposed this was an instance.

The Microscopy of Natal Arrowroot.

By T. Greenish, F.C.S.

The author had microscopically investigated the arrowroot grains some years back, and had noticed that Natal grains differed very markedly from all other starches. Since that period his observations had been confirmed by several German authors, and recent proceedings under the Adulteration Act in regard to arrowroot gave interest to the subject.

The most distinct account of the microscopic appearance of the grains was quoted from Dr. Julius Wiesner, who stated that they agree with no other arrowroot of commerce, nor with any known starch. The special peculiarities (which Mr. Greenish explained by means of diagrams) are, first, the measurement of the grains, which chiefly range between ·031 and ·045 m.m.; secondly, the hilum is eccentric, that is, out of the true mathematical centre, thus differing from wheat, barley, and rye; and thirdly, both hilum and laminæ are peculiarly clear. It is this clearness of the laminæ, Mr. Greenish thinks, which has sometimes caused Natal arrowroot to be mistaken for potato starch. The differences of the two starches are that the maranta granules are only on an average about two-thirds the size of the potato starch granules, that in the latter the nucleus is usually at the smaller end, and that generally in potato granules the hilum shows a transverse fracture, thus +, while in arrowroot granules it is simple, thus |. Mr. Greenish mentioned an instance where a public analyst had declared a certain starch to be *tous-les-mois*, while an analytical chemist asserted it to be potato starch. He himself said it was what it professed to be, namely, Natal arrowroot.

Reasons were given for believing Natal arrowroot to be the product of *Maranta arundinacea*, and some interesting experiments were recorded which compared the effect of certain temperatures on the granules of Natal, Bermuda, and St. Vincent arrowroots. From these it appears that Natal, at 55° C., seems equally affected (in respect to the swelling of the grains) as Bermuda at 60° C., and St. Vincent at 65° C. A jelly was made by adding ½ ounce of cold water to 1 drachm of starch, afterwards adding 1½ ounces of boiling water, gradually raising the temperature with constant stirring until complete gelatinasation was effected. Natal required 65° C., Bermuda 70° C., and St. Vincent 75° C.

From his experiments Mr. Greenish concludes that Natal arrowroot is richest in granulose, the other arrowroots containing most cellulose; and from this he judges that probably the dietetic value of the Natal arrowroot is greater than that of the others. It was stated that Bermuda arrowroot was becoming unknown here, the United Kingdom having imported in 1868 60 cwt.; in 1869, 90 cwt.; in 1870, none.

The President had not been aware that any doubt existed as to the source of Natal arrowroot. He would also ask whether it might not happen that different degrees of dryness of the various samples experimented upon might not have affected the swelling at different temperatures. He was surprised to hear that Bermuda arrowroot was not now imported. He bought and sold some under that name occasionally, and was under the impression that it was genuine.

Mr. Stoddart said that in looking at drawings of the different granules it seemed that it would be very easy to detect differences, but an unpractised microscopist would find it a more difficult matter when he had samples before him. In the Uttoxeter case, which had been mentioned, there was no possibility of mistake, and he quite agreed that there was no other starch similar to Natal; but there were often broken grains and other causes which might confuse the observer. He always used a fluid composed of certain proportions of spirit, water and glycerine to put his starches in on the slides. He could not give the proportion, for he mixed this by rule of thumb, but in practice they would soon be obtained. That mixture showed the grains and the hilum very distinctly.

Mr. Mackay spoke of the case of alleged arrowroot adulteration in the West of Scotland, in which he had been concerned. The purchaser had wanted him to guarantee the genuineness of the article, but this he had declined, not having imported it himself. He, however, sent samples of the arrowroot which had been certificated to be adulterated to Professors Redwood, Attfield, Maclagan and Archer, who all declared it to be genuine Natal arrowroot. This testimony failed to shake the confidence of the Greenock analyst, who, however, altered his statement to the effect that the arrowroot was adulterated with from 20 to 30 per cent. of potato starch. Mr. Mackay referred to the opinion of Dr. Maclagan, who thought it desirable to introduce the microscope at the pharmaceutical examinations, and one instance was mentioned of a Major candidate who had failed in consequence of not identifying some substance which he would have identified had he been allowed the use of a microscope.

Mr. **Brady** was surprised to hear Mr. Greenish refer to the "life history" of the starch granules. He thought that after the experiments of M. Réné the old theory of a cell wall was exploded. The germ theory in regard to the formation of cells would not hold water.

Professor **Redwood**, after referring to the case mentioned by Mr. Mackay, said it was very desirable that in the present day, when a tradesman is liable to penalty and injury for selling an impure substance, we should know precisely what we mean by "arrowroot." Are we to understand that arrowroot is "maranta," and if so are all the marantæ "genuine" arrowroots?

FURTHER RESEARCHES ON THE CRYSTALLINE CONSTITUENTS OF BARBADOES AND SOCOTRINE ALOES.

By William A. Tilden, D.Sc. Lond., F.C.S.

Barbaloin was discovered in 1851 by T. and H. Smith, and was submitted to chemical investigation by Stenhouse, who succeeded in preparing from it a bromo-substitution derivative. After drying in a vacuum barbaloin has a composition which may be expressed, according to Stenhouse, by the formula $C_{34}H_{38}O_{15}$.

In 1871 the late Daniel Hanbury examined an unusually crystalline variety of Socotrine aloes imported by way of Zanzibar, and at his request the crystalline constituent was analysed by Flückiger. This compound, which may be called *zanaloin*, resembles barbaloin in bitterness, solubility, and in giving chrysammic acid under prolonged treatment with nitric acid, but differs from it in the colour produced by the application of ordinary nitric acid in the cold. With barbaloin, nitric acid yields a crimson colouration, which soon fades to yellowish red, but with zanaloin very little change occurs till heat is applied, when a bright blood colour is developed. [After reading the paper Dr. Tilden showed these reactions on a white plate.]

Recent analyses of zanaloin made in the author's laboratory lead to the conclusion that zanaloin in the anhydrous state, that is, when dried in a vacuum, has precisely the same composition as barbaloin, but that it contains a larger quantity of water of crystallisation. It is also found to yield substitution derivatives with chlorine, bromine, and acetyl, the analysis of which leads in each case to the same numbers as the corresponding compounds formed from barbaloin. The bromo-zanaloin is obtained by pouring the solution of zanaloin into excess of bromine water and crystallising the bright yellow precipitate from rectified spirit. It was found in this case, as well as with barbaloin, that when the bromine is added to the aloin a precipitate is obtained which is contaminated with unaltered aloin.

This circumstance furnishes the explanation of the discrepancy between the results obtained by Stenhouse in his analysis of bromaloin and those of the author.

Chlorozanaloin is prepared, as in the case of barbaloin, by the action of potassium chlorate on a solution of the aloin in strong hydrochloric acid. The resulting precipitate crystallised from spirit forms those yellow prismatic crystals which are more lustrous than those of the brominated compound, and resemble very closely chlorobarbaloin. The acetyl derivatives were obtained from both barb- and zanaloin by the action of acetic anhydride. They are both amorphous. Since barb- and zanaloin and their derivatives have the same composition, it is obvious that the suggestion made by Rochleder, that they form successive terms of a homologous series, cannot be adopted. They may, however, be represented by a formula, $C_{16}H_{18}O_7$, which is simpler than that hitherto received, and is, moreover, in harmony with all the analytical data. The series of substitution derivatives from both compounds would then be represented by the following formulæ:—

Chlorinated compound	$C_{16}H_{15}Cl_3O_7$.
Brominated "	$C_{16}H_{15}Br_3O_7$.
Acetylinated "	$C_{16}H_{15}(C_2H_3O)_3O_7$.

The aloin of ordinary Socotrine aloes was first isolated in 1856 by T. B. Groves. It agrees in every respect with zanaloin; and taking into account the similar origin of the two bodies, they may with great probability be regarded as identical. The quantitative analysis of socaloin, however, yet remains to be effected.

The **President** said this was a paper which did great honour to the Conference. When he isolated the socaloin he had not the slightest idea of any difference between that body and the ordinary barbaloin.

In reference to a reaction of aloin with bichromate of potash Mr. **Schacht** asked if it was possible that this substance might be mistaken for strychnine.

Dr. **Tilden** said that no practised analyst could make such an error. With strychnine the colour produced was purple gradually fading to red. In this case the first colour was green, which changed to purple, and afterwards to yellow.

Mr. **Mackay** asked if Dr. Tilden could give any idea of the relative medical and commercial values of the aloins.

Dr. **Tilden** said he believed he was the only possessor of any zanaloin, and that only in small quantity, so that it could hardly be said to have a commercial value. As to its medical value, he could not at present say anything definite. Mr. Dobson, of the Bristol Infirmary, had undertaken some experiments in this direction, but that gentleman had recently taken a holiday, and his results were not yet completed. Barbaloin, Dr. Tilden believed, would be generally used commercially, as it was so much more easily produced than the other.

SOME POSSIBLE APPLICATIONS OF SALICYLIC ACID IN PHARMACY.

By F. Baden Benger, F.C.S.

The results obtained by Kolbe, Godeffroy, and others in testing the power of salicylic acid to prevent and check alcoholic, acetic and lactic fermentation, &c., having been detailed, a number of experiments were described, showing the antiseptic and preservative influence exerted by this substance when added to vegetable infusions and other pharmaceutical preparations liable to rapid decomposition. Amongst the specimens placed on the table were infusions of gentian, rhubarb, orange peel, cusparia, buchu, senega, and senna, mucilage, lemon juice, and flour paste. These had been preserved from two to four months by the addition of half a grain of salicylic acid to the fluid ounce, and were in most cases scarcely distinguishable from fresh preparations. Some infusions had been preserved by a quarter grain of the acid to the fluid ounce, but not less than half a grain was recommended.

An attempt to preserve the juices of conium, henbane, and taraxacum with half grain and one grain to the fluid ounce had failed.

A series of experiments were described which proved that salicylic acid does not prevent, and only slightly retards, the action of pepsine on coagulated albumen.

The statement recently published by Professor Salkowsky that benzoic acid possesses greater antiseptic properties than salicylic acid had induced the author to make some parallel experiments to those above mentioned, substituting benzoic acid for salicylic acid, and various infusions were shown, containing quarter of a grain and half a grain to the fluid ounce, which had been prepared a month, and were perfectly fresh and aromatic. It had also been proved that benzoic acid did not prevent the action of pepsine on albumen.

Mr. **Williams** referred to the statement recently published as to the power of salicylic acid to keep leeches alive.

Mr. **Thresh** said he had tried the plan as recommended, and found it answer. Formerly he lost one or two a week: since using the salicylic acid he had lost none.

Mr. **Gerrard** had not been successful in his experiments with salicylic acid. He had not found it of much use in keeping infusions. It should also be remembered that it might exercise a chemical action, with iron, for example. If perchloride of iron were ordered with infusion of quassia, containing salicylic acid, a purple tint would be produced. He had also tried salicylic acid for the preservation of leeches, but found the mortality just as great as before.

Mr. **Walter Hills** mentioned an instance of salicylic acid being used for keeping leeches, in which case it killed them off rapidly.

Mr. **Siebold** thought it likely that salicylic acid might interfere with the process of digestion. If, as had been stated, it prevents the action of diastase, it might also prevent the action of pancreatine.

Mr. **Schacht** referred to the experiments of Professor Lister with boracic acid as an antiseptic. This seemed to have been reported on very favourably by the medical profession.

Professor **Attfield** said that boracic acid was said to be used in the preservation of milk. He had himself observed it in milk.

Mr. **Savage** knew that it had been employed for that purpose in Brighton.

Mr. Siebold said boracic acid was employed largely in Germany for the preservation both of milk and meat. But benzoic acid was more efficient still. Meat cut in small pieces and preserved in an aqueous solution of benzoic acid would keep for ever. A preparation called acetine was largely used in Germany, and it was simply boracic acid coloured. But benzoic was most useful.

Mr. Ekin was sorry that the virtues of boracic acid in respect to milk should have been mentioned, and he hoped the reporters had not taken down the account of this application of it. The milkmen already regarded the analysts as their best friends, and all of them took great care to tone down their too rich milk to the minimum standard.

Mr. Young (Edinburgh) said Professor Lister gives preference now to boracic acid for the preparation of his antiseptic lint. He had tried salicylic acid.

Mr. Martindale said boracic acid was found to be milder than salicylic, and was therefore preferable in cases of burns, &c.

Mr. Gerrard remarked that in Mr. Benger's sample of paste there was a smell of carbolic acid.

The sample was handed to the President, who was understood to confirm Mr. Gerrard's observation.

Report on the Purity of the Magnesium Carbonates of Commerce.

By John C. Thresh.

This report dealt with seventy samples of the light and heavy carbonates, the author failing to obtain a single sample of the semi-ponderous variety. Each specimen was examined for lead, iron, calcium, aluminum, silica, soluble magnesium, and sodium salts, &c. The B.P. test for lime as an impurity in carbonates of magnesia was found to be unreliable, and the following test was proposed, which will detect with certainty ·1 per cent. of $CaCO_3$:—After igniting a portion of the carbonate to ascertain the percentage of MgO, place the calcined residue in a little water, and, after the lapse of half an hour, filter. The addition of ammonium oxalate to the filtrate will give a precipitate of CaC_2O_4 more or less rapidly, according to the quantity of lime salt present in the original sample. The test can be rendered quantitative by treating the oxide with successive portions of cold water until the filtrate ceases to precipitate with ammonium oxalate, then precipitating the lime as oxalate, and collecting and weighing in the usual manner.

All the heavy carbonates examined were free from lead, and only contained very slight traces of other impurities. A sample specially commented upon was obtained from a chemist who informed the author that he made all his own chemicals. It was very dense and granular, and upon analysis was found to contain 19 per cent. of soluble sodium and magnesium salts.

The light carbonates proved to be free from lead, but iron was present in proportions varying from a trace to ·35 per cent. in forty-two out of the forty-three samples examined. Only six were free from lime, several containing as much as 3 per cent. of $CaCO_3$

Most of the specimens also contained traces of alumina and soluble salts. The percentage of MgO found in most of the samples was slightly over the normal amount, and this was attributed to the carbonates having been in several cases dried at too high a temperature.

The author also drew attention to the fact that in some localities a mixture of calcined and light carbonate of magnesia was sold as calcined magnesia, this mixture being found not to "cake" when put up in packets for sale, whereas the genuine "calcined" cakes into a mass when kept for some time wrapped up in paper. This practice was condemned as unjustifiable, and as rendering the vendor of such a mixture liable to a heavy penalty under the "Adulteration Act."

Mr. Brady was surprised that Mr. Thresh had been unable to obtain samples of the semi-ponderous product. It was extensively manufactured at some of the large works in Newcastle, and there was especially a demand for it in America. In reply to an inquiry from the President, Mr. Brady said it would be a breach of confidence to state the method of the manufacture of this semi-ponderous magnesia. It was somewhat of a trade secret.* In reply to Mr. Umney, Mr. Brady said that he knew the chief manufacturers in Newcastle took great pains to produce their magnesia almost, if not quite, chemically pure. The heavy magnesia was a speciality of Howard's.

Mr. Tait (Edinburgh) mentioned in connection with this subject that his firm had found in certain instances that Gregory's powder prepared with the heavy carbonate was preferred to the powder compounded with the calcined, according to Dr. Gregory's orders. A lady who was a lineal descendant of the doctor's had told him that she preferred the article she had bought in London, for the reason that it mixed better.

Citrate of Lithium.

By C. Umney, F.C.S.

In this paper Mr. Umney criticised the official process for the preparation of citrate of lithium. According to the B. P., 100 parts of carbonate of lithium are ordered to 180 parts of citric acid. Squire, in his "Companion to the Pharmacopœia," however, takes exception to this formula, and gives for 100 of carbonate 200 parts of citric acid. This latter formula has been adopted in the U.S. Pharmacopœia. Theoretically, neither of these proportions is correct, and by actual experiment Mr. Umney finds that the first process yields a distinctly alkaline product, while that made according to the U.S. Pharmacopœia he found strongly acid. According to calculation, the proportion of citric acid to 100 parts of real carbonate of lithium should be 189·2 parts; and assuming the salt to contain 98·5 per cent. of real carbonate, 186·5 parts of citric acid would then be required. Lithium citrate prepared from these proportions, and dried until anhydrous, was found to be neutral to test paper. The salt is not deliquescent, as it is said to be by both Pharmacopœias. Both state as a quantitative test that the products should yield 53 per cent. of carbonate by ignition. Manifestly the resulting carbonate cannot be equal in each case, a different ratio of carbonate being ordered in the respective Pharmacopœias.

The examination of trade specimens of lithium citrate indicates that not only do manufacturers regard the anhydrous salt as required by the Pharmacopœia as an unnecessary refinement, but they simply decline to attempt its production. Ten specimens examined by Mr. Umney yielded proportions of anhydrous citrate varying from 73 to 84 per cent.

Mr. Umney recommends that the crystals, which are thoroughly definite and reliable, should be used in preference to anhydrous citrate, and if it be thought desirable to retain a salt containing less water than the crystals, then one dried at the temperature of a water bath would in his opinion be sufficient for all practical purposes. Crystalline citrate of lithium would be always uniform, and a citrate dried at the temperature of a water bath only would be easier of manipulation, and could be prepared and retained under all circumstances of greater uniformity than one absolutely anhydrous.

Mr. Williams said that formerly makers considered the crystals of citrate of lithium were difficult to make and were deliquescent. That, he believed, was the reason why they were not ordered in the official process. They certainly were not deliquescent, and there was now no difficulty in preparing them. He also said that the reason why makers do not completely dry the salt is that they find it thereby liable to become horny and of a bad colour.

Professor Redwood was glad to hear from two manufacturers an expression of opinion in favour of the adoption of a crystalline form for this salt. As Mr. Williams had virtually admitted, it was heretofore the manufacturers themselves who had stood in the way of the adoption of this form. Mr. Sandford, he believed, was the only exception. He (Professor Redwood) was glad that this conclusion had been arrived at.

Adulterated Musk.

Mr. G. Blanshard (Edinburgh) wished to show the Conference some specimens of musk pods very largely adulterated, which, he said, his firm had just received from London.

The pods were handed round, when Mr. Umney mentioned that dealers in musk divided their samples into what they called first pile, second pile, third pile, fourth pile. First pile was worth about 40*s.*, while fourth pile sold for about 14*s.* He asked Mr. Blanshard from which pile this purchase was made. Some laughter was occasioned by this very direct question, which Mr. Blanshard parried by saying that the musk was offered to them as of excellent quality, "at a moderate price."

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* At one of the non-official sectional evening meetings of the Conference on Clifton Downs, an eminent member gave it as a fact that the secret process of manufacturing semi-ponderous magnesia consisted simply in mixing together equal quantities of the light and heavy varieties.

Note on the Cultivation of Saffron in the Abruzzi.

By Henry Groves.

The writer (whose paper was read by his brother, the President) narrated a botanical tour in "The Abruzzi," a sea of mountains where the Apennines present their grandest chain. On the lower spurs of these mountains, at a height of from 2,000 to 3,000 feet, the cultivation of saffron has been carried on for many generations. The mountains are calcareous, and, except to the botanist who has roamed them, present a very barren aspect, only relieved by the beech thickets which straggle up their flanks as far as the tree limit.

The cultivated ground commences below the beech thickets, and is but a little less stony than the ground above; however, corn and potatoes thrive well, and a little lower down the saffron plots are established. Here the stones are removed as much as is possible in a soil that consists of little else, and the ground is well trenched to a depth of half a metre and prepared in August with animal manure, preferably that of sheep, so as to be ready for the planting of the bulbs in the following October. The bulbs are planted in ridges with intervening furrows, which, for economy of soil, are sown with corn, as this crop is gathered before the saffron flowers appear, and the furrows remain free as pathways for the gatherers; besides which they are so disposed as to drain the plot. Each ridge is about half a metre in width, and is planted with four or five rows of bulbs, which are placed so as to touch each other longitudinally, and are planted at a depth of 10 centimetres, so that they are but just covered with earth. Nothing now remains but to keep the ground well weeded, and in the latter part of October and the whole of November the crop is gathered.

Women gather the flowers early in the morning, and remove the stigmata at their leisure. Several flowers usually grow from one bulb, in some instances as many as ten or twelve. Once planted, the saffron plots remain good for two years, at the end of which time they are dug up, and in the third year are planted with corn, after which they may be used again for saffron, although they seek to keep the plots shifting as much as possible. Cows are lovers of saffron bulbs, and field mice would commit great havoc were they not looked after by the peasants, who keep small guns and traps constantly in the fields. The market price of good bulbs is about five lire or francs the "salma," which equals three "tomoli" or 167 litres. Many of the wealthy landowners owe their position to saffron dealing, which in reality is speculation, as the price per kilo ranges from one hundred to three hundred lire. The poorer cultivators sell at the price of the year, but the richer dealers set aside their saffron in tins if the price does not suit them. Some seasons have yielded such profits that one year's harvest has surpassed the value of the land under cultivation; at others the cultivation would have ceased were not the beds of two years' duration, and consequently no expense entailed to wait the result of a second season.

The adulteration of saffron is carried out in various ways, the chief one being by mixing with it boiled and shredded beef, the shreds being stained with saffron water and afterwards dried. The filaments of the stamens are also dyed in the same manner and intermixed. Another adulterant is an almost impalpable yellow earth found here and there in the mountains; and finally, before taking the product to market, it is damped with wine or water. Dealers accustomed to buying saffron avoid these adulterated specimens, so that the Aquilan or Abruzzi quality rules higher than any other kind, not excepting that of Spain.

Mr. **Williams** said it would be interesting to know whether saffron lost its colour through rain.

The Conference was then adjourned till the next day.

WEDNESDAY, AUGUST 25.

The Conference again met at 10 A.M. A number of new members were elected, including amongst them Professor Odling and Professor Frankland, whose names were loudly cheered. Mr. Greenish proposed and Mr. Brady seconded the election of Professor Dragendorf as an honorary member. This was carried unanimously.

The reading of papers was then proceeded with:—

Aqua Chloroformi.

By T. B. Groves, F.C.S.

A **mixture** containing sulphate of quinine, iodide of potassium, and chloroform water was prepared by an assistant of the author's, by dissolving the crystallised acid sulphate of quinine in chloroform water, and then adding the iodide in mass. This gave a varnishy precipitate of iodide of quinine; the liquid was decanted, the iodide dissolved in a little dilute sulphuric acid, and the bottle refilled with its previous contents. Very shortly a red cloudiness was observed, which rapidly increased until a considerable precipitate had formed. This, after a short time, assumed the form of crystalline plates, which, when placed under the microscope, were recognised by their tourmaline effects as those of herapathite [Sulphate of Iodoquinine].

The mixture was made a second time, the iodide of potassium being added last in strong solution, and the same result was obtained. When, however, the iodide was added in weak solution, and the mixture was kept well stirred, the formation of herapathite did not take place.

This result was traced to the chloroform water which had been made about six months, but it had every appearance and taste of freshness, and chemical tests indicated that it contained neither free acid nor free chlorine.

Some more aqua chloroformi was made at the time, and between January and August had been frequently tested, but the instantaneous reaction had not been reproduced. The only means of accounting for the first result seemed to be in supposing that the chloroform of which the water had been made was impure, and that by keeping for a long time in contact with water and air it had acquired an ozonised condition.

The Limited Oxidation of the Essential Oils.

By C. T. Kingzett, F.C.S.

Mr. **Kingzett** gave a summary of a long series of researches he had made on this subject. His results prove that by oxidation of turpentine atmospherically ozone is most certainly *not* produced, neither is peroxide of hydrogen as a direct product, but that an additive compound—an organic peroxide—is formed, which, on treatment with water, yields peroxide of hydrogen. If the oxidation, therefore, is effected in the presence of water, peroxide of hydrogen is found in the aqueous solution, but beyond doubt it results as a decomposition product, as above stated. Camphoric acid is also produced. These results may be effected either by simple exposure of the body with or without water to air and sunshine, or by the passage of a current of air at about 40° C. The oils of nutmeg, caraway, bergamotte, juniper, cubebs, lemon, and chamomile, absorb oxygen from the air, producing, in the presence of water, peroxide of hydrogen, and this is true also, so far as the author had examined, of all terpenes represented by the formula $C_{10}H_{16}$, but terpenes of the formula $C_{15}H_{24}$ do not produce peroxide of hydrogen in this way. This at least may be stated of the terpene of oil of cloves, isolated by Church and proved by him to have that formula. Patchouli, another member of this family, apparently fails also to yield hydric peroxide. When dilute nitric acid is employed as the oxidant, paratoluic acid is formed, but no peroxide of hydrogen, and when the oxidant is stronger, terephthalic acid is produced, together with acetic acid, which is formed in all three cases. Mr. Kingzett thinks that the results obtained by himself and by other chemists in various directions will ultimately lead to a great modification of the views of the constitution of hydrocarbons now generally entertained.

The **President** said the subject of this paper was of too high a character for most of the members to discuss off-hand.

Professor **Attfield** said the chemical examination of essential oils was a subject in which the Conference had always been interested. It was one of the first subjects which had been suggested for investigation, and the research had been taken up by Dr. Wright, and now by Mr. Kingzett. He reminded members that the surplus funds of the Conference were especially available for expensive investigations of this kind.

Mr. **Robbins** asked Mr. Kingzett if he had met with any account of experiments made by Dr. Day, of Geelong, who had found that all the oils with which he had experimented yielded peroxide of hydrogen. The oil of eucalyptus had been found to produce it most abundantly. Dr. Day had found this agent destroy all poisons in the blood, such as vaccine, and he had applied it as a remedy very successfully in cases of smallpox by mixing turpentine with lard and using it as an ointment. Canvas soaked in turpentine had also proved of great service.

Mr. **Kingzett** said he had not met with these experiments, but would be glad to see an account of them. He had bought lately a bottle of a new disinfectant advertised under the name of Terebene, and found it to be merely crude turpentine. It was sold at 2*s.* for a pint bottle.

Mr. **Williams** said that terebene was certainly a very remarkable body. It was produced by the action of sulphuric acid on turpentine, which occasioned a violent chemical disturbance, but did not appear to combine with the turpentine at all. The new body seemed to be isomeric with turpentine, but had different characteristics, boiling at a higher temperature, &c. He considered the action to be due entirely to a change of molecular composition.

Chemical Investigation of Jaborandi.

By A. W. Gerrard.

Mr. **Gerrard** commenced his paper by describing the various chemical examinations to which jaborandi had been subjected by French investigators, and likewise by himself. Mr. Gerrard states that M. Byasson obtained an alkaloid from the plant which is identical with that obtained by himself. M. Byasson also obtained what he describes as a second alkaloid, but which Mr. Gerrard believes to have been chloride of potassium. Experiments upon the leaves and bark were then described, the author giving a process by which the alkaloid was obtained.

The residues of the various processes were examined, and Mr. Gerrard concluded his paper by stating that jaborandi contains an alkaloid, viz., pilocarpine, possessing well-marked physiological properties, also probably a second alkaloid, tannic acid, an unknown volatile acid, a solid volatile oil or stearopten, and chloride of potassium.

Crystalline specimens of the alkaloid were exhibited, which Mr. Gerrard had prepared; also a fine specimen of the jaborandi plant, lent by Messrs. Hearon, Squire & Francis.

Mr. **William Murrell**, L.R.C.P., also contributed a report of some interesting physiological experiments he had made at University College with the alkaloid extracted from jaborandi by Mr. Gerrard. $\frac{1}{10}$th of a grain produced profuse salivation on a small dog and on a rabbit; but this was in each case readily checked by the administration of the $\frac{1}{200}$th of a grain of sulphate of atropine, both substances being injected subcutaneously. Experiments were also made on frogs, and the alkaloid in large doses was found to produce tetanic, and in smaller doses neurotic, symptoms, both proving fatal in a few hours.

In reply to Mr. Mackay, Mr. Gerrard said that his experiments had been confined to the leaves and the bark; he had not tried the wood. Mr. Greenish asked what was the best form for a pharmaceutical preparation of jaborandi, to which Mr. Gerrard answered that a liquid extract, similar to the extract of ergot of the B. P., would be, in his opinion, the most satisfactory formula.

The Horsley-Stoddart Method of Estimating Fat in Milk.

By A. H. Allen, F.C.S.

Mr. **Stoddart** had described this process at the Conference meeting last year, and Mr. Allen had then expressed doubts as to the value of the method. He had since made careful experiments, and now offered his results.

Mr. Horsley's process was very rapid and simple, and, if trustworthy, must be most useful; though from the fact that butter fat is the most variable of the constituents of milk, the process was likely to be fallacious in regard to the proportion of added water. Mr. Horsley's method was to put 4½ fluid drachms of the milk to be tested in a graduated tube. To this was added an equal quantity of methylated ether, a cork or stopper inserted, and the whole shaken vigorously for five minutes. Then a similar quantity of methylated spirit is added, and the mixture is shaken again for five minutes. The oily matter rises to the surface, and may be at once read off, each division of 8·2 fl. grs. being equivalent to 4·15 grains of butter fat.

Mr. Allen then referred to a process described by M. Marchand in the *Journal de Pharmacie et de Chimie* in 1854. M. Marchand's tube was exactly the same length as that used by Mr. Horsley; the materials and proportions used were also precisely similar, but M. Marchand adds a drop of potash solution to the milk to keep the casein in solution, and warms the mixture in a water bath to blood heat, until the fat no longer rises. Mr. Horsley makes no reference to previous experiments, and it rests with him to say whether he knew anything of M. Marchand's process.

Mr. Allen then went on to show that by a series of experiments made by himself the volume of butter fat as indicated in the tube was not a reliable indication of its weight. He had made a pipette by which he drew off a measured quantity of the oily layer, which was then evaporated at a steam heat in very small porcelain crucibles. A number of experiments of this kind were recorded, from which it appeared that equal quantities of the oily layer of the same sample of milk, treated according to Mr. Horsley's process, yielded weights of fat when the ether was evaporated varying in one instance from ·204 to ·261 gramme; in another case from ·171 to ·200 gramme. Calculating on the average of these results, Mr. Allen stated that a milk which, according to Horsley and Stoddart, contained 3·32 per cent. of butter fat would, according to him, contain 2·49 per cent.

The time stated by Messrs. Horsley and Stoddart was not long enough to allow all the butter to rise. The warming of the mixture, as recommended by M. Marchand, considerably increased the efficiency of the process, and Mr. Allen also regarded the addition of a drop of caustic soda or potash as very useful. He thought the process a valuable one if Marchand's precautions were adopted, and if the oily layer were not measured, but drawn off, heated, and weighed.

Mr. **Stoddart** replied somewhat warmly to Mr. Allen's "very positive and not very complimentary statements." He had never said that 10 minutes was long enough to obtain all the fat. He disagreed *in toto* as to the addition of caustic soda or potash. He also employed a tube with a stopper, not with a cork, as shown by Mr. Allen. But, Mr. Stoddart said, he had never condemned a sample of milk in consequence of the results obtained in this tube. What he asserted was that it was an excellent preliminary test, and if it yielded a fair proportion of fat it was not necessary to proceed further with the analysis. He would also mention that he always used pure alcohol. If spirit of only 56 over proof were used the results could not be depended upon.

Mr. **Siebold** had made a great many experiments with these tubes, and could fully corroborate what Mr. Stoddart had said as to their value. He took these results in connection with the specific gravity of the milk, and if both were satisfactory, an analyst might say for certain that the milk was unadulterated. He always allowed the tube to stand for an hour after shaking the mixture.

Mr. **Ekin** also supported Mr. Stoddart, though, he said, it needed a bold man to interfere between public analysts. He described an experiment he had quite recently made, which showed, according to the tubes, a proportion of 2·97 per cent. of butter fat in a certain sample of milk, and which on testing according to Wanklyn's process gave a proportion of 2·92 per cent., a corroboration which he admitted was suspiciously close. Mr. Ekin also mentioned another milk from a Guernsey cow, which he had lately tested, and which he said gave the large quantity of 7½ per cent. of butter fat. At the same time, that milk, though evidently far richer than milk ordinarily was, yielded less than 9 per cent. of solids, which, he believed, was below the analyst's standard.

In reference to this, Professor **Redwood** remarked that Mr. Ekin should bear in mind that when there was so large a proportion of fat he was estimating on a smaller proportion of liquid. If ordinary milk contained 3 per cent. of fat, and this nearly 8 per cent., it was evident that the solids were estimated as so much in 92 parts instead of in 97 parts as usual.

Mr. **Allen**, in reply, disclaimed any intention to attack a brother analyst, but considered that when a process like this was brought forward, together with very positive statements as to its accuracy, it behoved the members of the Conference to test it rigorously, and give the results of their experiments before the same body as heard the original description. He said his tubes had been procured through Mr. Horsley's agent at Cheltenham, and if he had done wrong in following the directions which had been given by the author and Mr. Stoddart it was not his fault. At some length he went on to show that he had strictly followed the instructions of Messrs. Horsley and Stoddart, as described in the former's pamphlet, and the latter's published paper in the "Year-Book of Pharmacy," and he added that it was clear that all the speakers who had criticised his paper perfectly agreed with him that the process required certain modifications to ensure accuracy. If the apparatus was only claimed to be an approximate test for milk he admitted its usefulness, and that was exactly what he had endeavoured to prove; but very positive assertions were made last year as to its absolute scientific accuracy, even in the original crude form described by Mr. Horsley.

Immediately after luncheon Mr. Horsley entered the meeting, and by permission of the President was allowed to re-open the subject. He had not been present that morning, he said, because he had not expected Mr. Allen's paper to come on until the afternoon. He had, however, heard the drift of Mr. Allen's paper. Last year Mr. Allen had made some very improper remarks in respect to this process, of which at that time he knew nothing. He (Mr. Horsley) was indignant when he read the report, and wrote to Mr. Allen asking him if he had used his tubes. Mr. Allen had only used an old apparatus of his. Mr. Allen now, he understood, intimated that the apparatus was a piracy from a French chemist. He (Mr. Horsley) denied the similarity. "Besides" (he added, though his audience failed to grasp the logic of his argument), "this French process was introduced twenty years before mine was on the *tapis*; how, then, can mine be a piracy?"

As soon as Mr. Horsley had finished his "apologia," the President passed on to the next business, thus concluding the most lively episode of the Conference.

PHOSPHATE OF CALCIUM.

By J. F. Brown, Dover.

THIS paper showed the existence of a considerable amount of water in the phosphate as usually found in commerce. It recorded some attempts at volumetrically estimating the phosphoric acid it contains, and pointed out a discrepancy in the statements of different authorities respecting its composition. The preparation of calcium phosphate by double decomposition was also described, and a suggestion made for the improvement of the Pharmacopœia standard of purity.

The PRESIDENT said this was a difficult subject to deal with: chemists were not by any means in unison as to the composition of the phosphate of lime from bone ash. It was found to vary according to the age of the animal.

JAPANESE OIL OF PEPPERMINT.

By C. R. A. Wright, D.Sc.

PROFESSOR ATTFIELD read a summary of this paper, which was confined exclusively to the chemical characteristics of the oil in question.

OPTICAL ANALYSIS IN PHARMACY.

By Henry Pocklington.

THE object of the author was to show how useful to pharmacy were the microscope, the polariscope, and the spectroscope.

The microscope was particularly valuable in the detection of adulteration in powders: no pharmacist, indeed, who has proper regard for his safety can afford to neglect it. Mr. Greenish had shown the value of the microscope in the estimation of scammony both by detecting any admixture and judging of the quality. Mustard, pepper, ground ginger, arrowroot, cayenne pepper, and other articles, were also instanced, in valuing which the microscope was exceedingly useful. The necessary microscope need not be expensive. Several English makers supplied very good ones complete for seven or eight pounds. He (the author) uses in his own ordinary work a Smith & Beck's "Universal," and is therewith content. For ordinary laboratory work the small, cheap, but good instruments are the best.

The polariscope was next mentioned. It may be used in conjunction with the microscope in the detection of adulteration of wax, spermaceti and butter; and Mr. Pocklington thinks there is a field for its exercise in detecting by means of it the rotation of the plane of polarised light which certain substances effect. Turpentine is said by some writers to have the power of left-handed rotation, but Pereira showed in 1845 that turpentines differ in this respect—some rotate to the right, some to the left, and a mixture is optically inactive. The several tartaric acids give another instance. It is nevertheless highly probable that some good use of this method of optical analysis might be made if pharmacists with material at command would investigate the subject.

On the spectroscope Mr. Pocklington had but little to say. Mr. Stoddart had given his attention to it in the examination of tinctures, but he thought, so far, no good had come of it. There is, however, hope. The difficulty lies at present in the isolation of the constituents sufficiently to enable us to get at them, and to this point workers at the subject must, in his opinion, first direct their attention. Early workers at the subject have too completely forgotten that the spectroscope is, after all, merely an instrument for colour testing; that it enables us to discriminate between colours closely allied, by eye reading, by separating them into their constituents; or that it renders single colour elements visible by separating them from others by which they are overborne.

The PRESIDENT directed particular attention to the remark of Mr. Pocklington in which he agreed with Dr. Carpenter that a cheap but well-made instrument was more useful than the more expensive ones. Mr. Stoddart had shown him some of the results of his investigations with the micro-spectroscope, but for some reason he was not able to get the same. He could not account for it: he was not colour-blind, but he could not reproduce Mr. Stoddart's results.

Mr. STODDART said he continued to use the micro-spectroscope to this day, and found it more and more useful. As usually made, this instrument is not suitable for pharmaceutical research. It should be made so that the dark lines cross the rays instead of running parallel to them. An error frequently made is that, looking, for instance, at the spectra of tincture of rhubarb and tincture of gentian, a casual observer might suppose they were exactly alike; but if placed side by side it would be seen that the lines did not match. This remark applied also to wines; but by using a reagent distinctive spectra were obtained. A great many people, too, who are confident that they are not colour blind, are so to a certain degree. Mr. Stoddart especially instanced the President. He said also that he found the spectroscope of great service in estimating the value of sugar.

Mr. ALLEN (Sheffield) said that, although he had not himself used the spectroscope, he had frequently seen it in the hands of his friend Mr. Sorby, and he could fully corroborate Mr. Stoddart's testimony to its usefulness. He said that blood and an ammoniacal solution of cochineal gave exactly the same spectra, but by the application of a reducing agent, sulphite of soda for instance, the difference was manifest at once. He had also found the polariscope very useful in detecting the adulteration of citric by tartaric acid.

Mr. SCHACHT asked if the spectroscope could be relied on as anything more than a mere colour test. Mr. Pocklington seemed to say it could not.

To this Messrs. Stoddart and Allen both replied that, as a rule, it would most certainly, "almost without exception," give distinctive results.

Mr. ARMSTRONG (Liverpool) wound up the discussion amid much laughter by giving his own experience of the spectroscope. He said that the lines often appeared quite different after dinner than they did before, especially if onions had formed part of the banquet.

NOTE ON THE PRESERVATION OF HYDROCYANIC ACID.

By John Williams, F.C.S.

LAST year Mr. Williams reported some experiments he had then recently made, from which he concluded that 20 per cent. of glycerine added to hydrocyanic acid would keep it in full strength. He now brought before the Conference the results of experiments lasting over a longer period. On July 31, 1874, two samples were most carefully prepared, one containing 4·5 per cent. of real hydrocyanic acid (to represent Scheele's strength), the other exactly 2 per cent., representing, therefore, B.P. Each contained an addition of 20 per cent. of Price's pure glycerine. These samples were each about ten fluid ounces, and contained in pint white glass-stoppered bottles, not tied over or inverted, but kept in a cool dark closet. The conditions were purposely arranged to represent as nearly as possible the ordinary ones of the dispensing counter: of course the bottles were kept tightly stoppered, and only opened twice during the period of trial. No appreciable diminution of strength was observable after a twelvemonth.

Another experiment was made to see how long very strong hydrocyanic acid could be kept. A specimen containing 20 per cent. of glycerine was prepared on July 31, 1874, which when tested gave 26·8 per cent. of real acid. Price's glycerine, however, was not employed on this occasion, but some of German origin. A slightly yellow appearance occurred in one day, and the author had noticed that with weak acids this yellow appearance was always produced when German glycerine was used. On December 23 the acid was found to have lost 2·8 per cent. When next examined, two months after, the preparation was completely decomposed, being a solid black mass, quite free from hydrocyanic acid, and smelling faintly of ammonia. This sample had been kept covered over, and Mr. Williams thought it likely that the decomposition had been caused when the bottle was disturbed in December. He had lately prepared some acid of 32 per cent., using Price's glycerine, which had lost no strength as yet, but on which he hoped to report next year.

Some objection had been made to the addition of glycerine on medical grounds, but the author thought, as there would be only one drop in five, the internal administration of so small a quantity could not be of much importance.

Mr. Siebold supposed that glycerine could only prevent the spontaneous decomposition of hydrocyanic acid. He could not see that it could prevent in any way its evaporation. He thought the experiments would more closely represent the conditions in a chemist's shop if the bottle had been opened once or twice a week.

Royer de la Bastie's Toughened Glass.

By Henry Pocklington.

The process for manufacturing this glass has been already described in these pages (Chemist and Druggist, May and June). The author of this paper had endeavoured to ascertain its structure by means of polarised light, and after a number of experiments, which, however, did not seem to be by any means definite, he came to the conclusion that Bastie's glass might be regarded as a series of layers, the molecules of which are more closely arranged towards the exterior, the strength increasing from the centre outwards. In "Rupert's drops" he believes a similar series of layers is formed, but in them he thinks the strength is concentrated towards the centre.

This treatment of the subject somewhat disappointed the audience, who had expected to have some practical exhibition of the value of this new invention.

Mr. Brady and Mr. Mackay gave some account of the glass and of its probable advantages. Mr. Brady stated that one of the chief difficulties yet to be overcome, besides the fact that it cannot be cut, depends on the necessity of immersing the whole of any glass vessel to be tempered at one moment. He said that flat pieces of glass could be tempered readily; so could simple shapes like tumblers: but a vessel like a decanter could not be dipped into the tempering fluid so as to be affected entirely at the same moment. Mr. Mackay stated that a dealer in lamp glasses in Scotland had some years ago acquired a great celebrity for the peculiar toughness of his chimneys. His plan was simply to buy up the chimneys of other makers and pack them in cauldrons, with a layer of hay between each layer of chimneys. The whole was then covered with water, and heat applied until the water boiled. It was found that this process greatly hardened the glass.

The last paper read was one on "Commercial Compound Colocynth Pill," contributed by Mr. W. Laird, of Dundee. The paper was read by Professor Attfield, and detailed the examination of certain samples which had been obtained by the author.

Mr. Umney pointed out that some confusion had been made in this paper between the compound colocynth pill and the compound colocynth extract.

Mr. Mackay said colocynth pills, known as "Dr. Gregory's," were sold largely in the North of Scotland, and it was probably these that Mr. Laird had examined.

The President said that evidently, in the absence of definite information, they could not discuss the paper.

Some general business remained to be transacted. The first taken was the election of officers for the ensuing year. The following list, which had been prepared by the Executive Committee, was duly approved of, one vote, however, being given for Mr. Schacht as President in place of Professor Redwood.

President:
Professor Redwood, London.
Vice-Presidents:
T. H. Hills, F.C.S., London
R. Reynolds, F.C.S., Leeds
E. C. C. Stanford, F.C.S., Glasgow
D. Fraser, Glasgow
Treasurer:
G. F. Schacht, F.C.S., Clifton
General Secretaries:
Professor Attfield, F.C.S., London
F. B. Benger, F.C.S., Manchester
Local Secretary:
A. Kinninmont, Glasgow
Other Members of Executive Committee:
M. Carteighe, F.C.S., London
C. Ekin, F.C.S., Bath
J. R. Young, Edinburgh
C. Boorne, Bristol
J. Williams, F.C.S., London
W. A. Tilden, D.Sc., F.C.S., Clifton
C. Umney, F.C.S., London
T. Davison, Glasgow
J. M. Fairlie, Glasgow
Auditors:
J. Pitman, Bristol
J. Macmillan, Glasgow

Professor Attfield read a communication from Glasgow cordially inviting the Conference to visit that city next year. The letter was signed by William Greig, President, and J. M. Fairlie, Honorary Secretary, of the Glasgow Chemists' and Druggists' Association.

Mr. Groves moved and Mr. Carteighe seconded that this courteous invitation should be accepted. This was carried.

Mr. Mackay moved a vote of thanks to the Bristol Local Committee. He said, when the roll-call of these Pharmaceutical Conferences was painted, the Bristol meeting would bulk very largely in the foreground of that picture. The Conference was greatly indebted to Messrs. Boorne, Schacht, Pitman and others for their kind and untiring efforts.

Mr. Atkins (Mayor of Salisbury) seconded the vote most heartily. The work of the Local Committee was not yet ended, and if gratitude was a lively sense of favours to come, this consideration might stimulate the vote. The papers and discussions had been thoroughly practical, a fact that would be appreciated by a wide constituency outside.

Professor Attfield supported the vote as one of the officers of the Conference, remarking on the excellent organising abilities which Mr. Pitman had exhibited.

Mr. Pitman was absent, and the vote was acknowledged by Mr. Boorne.

A vote of thanks to the President was moved by Mr. T. H. Hills, and seconded by Mr. C. Ekin. Mr. Brady proposed and Mr. Stoddart seconded a similar vote to the Honorary Secretary, Professor Attfield. Similar votes were also accorded to the Volunteer Club and to the Museum and Library Society for their liberality in granting the use of their buildings.

The Conference was then formally adjourned until next year at Glasgow.

Thursday, August 26, was a blank day as far as the Conference programme indicated, but those visitors who remained spent it pleasantly in various ways. Some visited the objects of interest in Bristol and Clifton, others took a trip to Bath, and one good-sized party crossed the Severn and explored the beauties surrounding Tintern Abbey, travelling thither from Chepstow in waggonettes.

Friday was completely occupied with the excursion so thoughtfully and liberally arranged by the Local Committee. A special train conveyed the company (about 120 in all, including about a dozen ladies) first to Wells. About two hours were occupied in this ancient city, the cathedral and the palace grounds monopolising most of the attention. The train then proceeded to Cheddar, and after a light luncheon at the station, walks were taken through the grand rock scenery which has conspired with the local cheese production to make the little village famous. The wonderful stalactite cavern was visited in groups, and surely Mr. Cox never had such inquisitive guests before. Not satisfied with admiring the beauties of this cave, they plied that gentleman with questions altogether "beyond the boundary of experimental evidence." Returning to the station, a handsome dinner awaited the tourists, spread in a large building near by. Speeches followed the dinner, and at 9 P.M. precisely the special train landed the whole party at Bristol once more, from whence they radiated to all parts of the United Kingdom.

We conclude our narrative with a brief report of the speeches delivered at the Cheddar dinner:—

The chair was taken by Mr. Boorne, who was supported by the Presidents of the Pharmaceutical Society and of the Pharmaceutical Conference, and was faced by Mr. Townsend in the vice-chair.

After proposing in loyal terms "The Queen" and "The Royal Family," toasts which commanded the usual patriotic enthusiasm, Mr. Boorne gave "The British Pharmaceutical Conference." Some people, he said, might ask the use of such an association, but no one would question its value who had ever attended one of its meetings. It provided a great intellectual, and at the same time a great social, benefit to pharmaceutists. It brought us in contact with men whose names were widely known and revered. It had brought down to Bristol, for instance, the President of the Pharmaceutical Society, and representative men from Scotland, and Ireland, and all parts of the kingdom. He called upon the company to drink heartily the toast of "Prosperity to the British Pharmaceutical Conference," and he coupled with it the names of its honoured President, Mr. Groves, whose address, given two or three days ago, had been not often equalled, and of its indefatigable Secretary, Professor Attfield.

Mr. T. B. Groves, who was received with loud cheers, said he had only quite recently learned that his presidential duties still clung to him. He was, however, most proud to respond to this toast once again before he shuffled off this mortal, or rather immortal, coil. He was literally the slave of the Conference. What he could do for it he had done, and he hoped yet to be able to do more. If, as Mr. Boorne was pleased to say, the meetings had passed off well under his presidency, he was extremely proud as far as his share went. After commenting briefly on the benefits to be derived from these meetings, Mr. Groves concluded by heartily thanking the officers and members generally for their kind support during his presidency.

There were calls for Professor Attfield, who, in response, said it was difficult to respond fittingly year after year to this toast. There were, however, on this occasion some special reasons for an increase of interest in the Conference. He could congratulate the members on the fact that they had amongst them in that party representatives of all their past presidents. They had the son of their first president, the honoured and revered Henry Deane; they had the two colleagues of Professor Bentley; they had those who so admirably represented Mr. Stoddart, and in regard to Mr. Stoddart he (the speaker) would say that one of the greatest achievements of the Conference was, not the discovery, but the rediscovery of that gentleman. There had also been present with them that day the brother of the great pharmacologist, Daniel Hanbury; and besides these there were sitting amongst them Mr. Brady, Mr. Groves, and the President elect, from whom so much was expected, Professor Redwood. Other reasons for congratulation were found in the fact that during the past year they had added to their roll of membership some of the greatest names in science. Without any request from him, Professors Odling and Frankland and many others had joined the Conference. A great compliment, too, had been paid to the Conference by the President of the Chemical Section of the British Association. Mr. Vernon Harcourt, in his opening address, had urged that the Chemical Section of the British Association, and indeed all the sections, should issue lists of subjects for investigation, as was done by the British Pharmaceutical Conference.

Mr. C. Ekin said that when a member visits one of these pharmaceutical conferences for the first time he cannot fail soon to become sensible of the subtle and benign influences which pervade it. At first he is a little puzzled to account for the origin of such influences, but it becomes clearer to him when he hears a certain gentleman rise and make a more than usually weighty remark. He asks his neighbour the name of that gentleman, and learns that it is Mr. Hills. Mr. Ekin had now to propose the health of that gentleman as President of the Pharmaceutical Society, and he was sure that they could have no better representative of the kindly feeling which existed between the elder and the younger bodies.

Mr. Hills said he could reply in a double capacity. He had the honour to hold the position of President of the Pharmaceutical Society, and was also a Vice-President of the Pharmaceutical Conference. He should never be president of the latter body, but he was not second to any one in his desire to promote the interests of the Conference. At the same time he should not forget the Pharmaceutical Society. The Conference was the offspring of the Pharmaceutical Society, and as such he had always regarded it. Mr. Hills remarked on the highly successful manner in which everything had been managed by the Bristol pharmacists, and he thanked them most heartily.

Mr. Townsend proposed "The North British Branch of the Pharmaceutical Society," coupled with the health of Mr. Mackay. He often spent his holidays in Scotland, and wondered how people could ever get ill there, and thus need any pharmaceutists at all. He could understand their being ill in Bristol or in London. He supposed the North British chemists existed for the benefit of their fellow creatures in a general sort of way.

Mr. Mackay said the natural modesty peculiar to his nation was more than usually tried on this occasion, when surrounded by so much grace and beauty and by gentlemen of such eminence in science and literature. He had heard of organic and inorganic chemistry. Mr. Stoddart had told them something of the inorganic chemistry of the hills and rocks around Bristol, in which he had discovered some traces of the precious metals. Mr. Mackay was reminded of the attempt made some 100 years ago by a party of Dutch speculators to cart away from Edinburgh the noble Carlton Hill. Chemistry was in its infancy then, but, notwithstanding, the wise men who governed Edinburgh at that time concluded that Carlton Hill contained some gold, and it was due to that belief that it was retained in the city. Now to turn to organic chemistry. Of all the chemical organisations he had ever seen or heard of, he had never seen nor heard of such organisation as that which Bristol had shown them. He might mention particularly Mr. Boorne, Mr. Schacht, and especially and emphatically Mr. Pitman. In the name of the Scotch deputation and for himself he begged to thank those gentlemen for their labours with more sincerity and with more cordiality than words could convey.

Mr. Carteighe had to propose "Success to Provincial Pharmaceutical Associations." Such a toast, he thought, was particularly appropriate in a city like Bristol, where were men fully qualified as scientific chemists, geologists, and biologists, yet actually practising the profession of pharmacy. Bristol had done enough to make other large towns in the kingdom which had not a pharmaceutical association ashamed of themselves. The toast was coupled with the name of Mr. Shaw, of Liverpool.

Mr. Shaw gave brief notes of his experience in connection with the Pharmaceutical Associations of Edinburgh and Liverpool. In respect to the latter society, Mr. Shaw said it was established in 1848, and was yet in existence. They had lost some of their able men, however, such as Edwards, Evans, Mercer, and others. Their great difficulty was to get the young men to come and take advantage of what was provided. It had been suggested that they should apply to Bristol to know how they managed to carry on their classes, but his reply had been that Bristol had such men as Schacht and Stoddart.

Mr. Young (Edinburgh) proposed "Science and Literature," and having alluded to the advantages derived from science generally, he coupled the toast with the name of Mr. Brady.

Mr. Brady said he was the victim of a cruel blunder. He had been wondering what was his connection with literature, but his friend, Mr. Walter Hills, had suggested that it might be traced to the publication of "Tate and Brady's Hymns." If that were so, he ventured to think that the proper person to reply to the toast would have been the senior partner in the concern, who sat at the top of the table (Mr. Tait, of Edinburgh).

Mr. Schacht proposed "The Health of Professor Redwood, the President Elect." He had had the great luck of being one of the earliest students of the Professor's, and ever since he had had the honour of being his friend.

Professor Redwood was very pleased to take this earliest opportunity of thanking the members of the British Pharmaceutical Conference for the high honour they had conferred upon him. He regarded the distinction as a very high one, and the spirit in which it had been conferred was something more than kindness. Although wholly unworthy, he could not hesitate to accept the post. He wished to explain how it was that he had done so little for the Conference in years gone by. In justification of his conduct he might say that when the Conference was first established it was clearly understood that one of its chief objects was to develop the talent of the younger members of the profession, and he thought it would seem like interference if those of the older school took an active part in its affairs. He had come among them this year as an apprentice. He had associated with members at Bristol more than he had done on any previous occasion, and it gave him very great pleasure to propose "The Health of the Local Committee," naming especially Messrs. Boorne, Townsend, Schacht and Pitman.

This toast was received with tumultuous applause, and loud calls were made for Mr. Pitman. That gentleman said he should have been prepared to take his part in the quartette, but he had not expected to be called for in that manner. He was, however, happy if he had been in any way instrumental in promoting the pleasure of the visitors. Certainly he had been repaid a thousandfold by the friendships he had formed, and he should be very glad if the meeting of the British Pharmaceutical Conference was an annual affair for Bristol.

Mr. Tait (Edinburgh) proposed "The Ladies," which, he said, was the toast of the evening, after all. Mr. Tait's speech occasioned much amusement, but in some parts of the room it was but imperfectly heard.

Mr. Walter Hills responded, envying the previous speaker the pleasant *tête-à-tête* he had evidently enjoyed, in the stalactite cavern that day, and also suggesting that now the ladies are so anxious to undertake all duties they might be permitted in future to reply to this toast for themselves. Mr. Hills concluded with a few humorous appropriate lines, which the proximity of one of the poets of pharmacy sufficiently accounted for.

Correspondence

THE PRESERVATION OF INFUSIONS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Dear Sir,—The *Pharmaceutical Journal* publishes a series of experiments on the wonderful properties of salicylic acid in preserving infusions two-fifths or three-sevenths longer time than they would have remained unchanged without the addition of it. Putting aside the questionable practice of adding arbitrarily to authorised formulæ, there really is not much advantage in having an infusion of cascarilla which will spoil in five days instead of in two or three.

Infusions spoil because of infinitesimally small germs, which, floating in every breath of air, find a suitable condition in the infusions for their further development. Keep these germs out and the infusions will be stable. I was shown a year ago some watery infusions which by a very simple plan had been kept unchanged for several years. I immediately adopted it. By merely putting a strained infusion into common four, six, or eight-ounce bottles, and allowing these to reach a boiling temperature in a water-bath, and plugging the necks with a bit of cotton wool, not over tight, I have always a perfectly good infusion to use. Those of gentian, orange peel, and rose I have kept in this way for months. If I wish to avoid the second heating, I put the ingredients into hot water in a bottle with a rather wide neck, and placing this in a water-bath, bring it to a boiling temperature as quickly as possible, take it out, and plug the neck with cotton wool as before. The only precaution besides those I have mentioned is to avoid allowing the plug of cotton wool to become wetted with the infusion. I was really ashamed that I had known of the filtration of air for so long a period and yet threw away so many remains of infusions which might thus easily have been preserved.

I am, sir, yours truly,
G. E. Burt.

York Street, Westminster:
Sept. 8, 1875.

BANKERS' CLERKS IN A NEW ASPECT.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—I quite agree with your correspondent "Chemist" of last month. I know a young man who was, a few months prior to receiving his certificate as a "Registered Chemist and Druggist," a Banker's Clerk! He had never served an apprenticeship to the trade, but thinking our calling more lucrative than his own, and having "an eye to (a) business," placed himself under the tuition of a manager of a provident dispensary, which, doubtless, he thinks a providential thing. Surely, Mr. Editor, such results are not just to those who have served a four, five, or six years' apprenticeship.

Yours truly,
September 6. Leicester.

[Our correspondents of this and last month appear to have overlooked the regulation that after January 1, 1877, every candidate for a pharmaceutical diploma will have to produce certificates to the effect that for three years he has been an apprentice or student, or otherwise practically engaged in the pharmaceutical art.—Ed. C. & D.]

THE MAJOR EXAMINATION.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—It was my misfortune to be among the number of rejected candidates at the Major Examination in London in July last, and if you will allow me a little space in your valuable journal I will state for the benefit of intending candidates how the examination was conducted in my case.

In the first place, I would mention that I am a self-taught student, and since passing the Minor have pursued a course of study extending over 12 months at much inconvenience and expense. No candidate for the Major is, I believe, admitted to the *viva voce* examination on the second day unless he has satisfied the examiners in the practical work on the first day. I was admitted on the second day, and my examination in chemistry was commenced by there being put before me a bottle containing starch, and I was asked to state what I knew about it. I made a few statements concerning it, which, after subsequent reference, I found to be correct. I was then examined on sugar, and answered the questions put to me as clearly as I could, some of which, however, were put in such a way as to render it almost an impossibility for anyone of my age and experience to answer without guessing a little, and I mentioned to the examiner that I should be obliged to do so if I gave an answer at all. To this he agreed, and told me in some cases I was right. I was now questioned on vinegar, and asked how it was obtained. I described one process, and when asked for another was so confused and nervous from the previous questions on starch and sugar that I could not think of malt, though it would be ridiculous to suppose that the youngest apprentice did not know it, through having, like myself, retailed "Pure Malt Vinegar" many hundreds of times. I was further questioned on the ethyl series, and the majority of the questions I answered correctly.

On being asked to describe the preparation of ether, I gave the B. P. process in full, and mentioning the word mattrass, I was asked to explain what this piece of apparatus was like. Now, sir, had I been a "Square man" I might have been prepared for such a question, but being self-taught, and not having had the facilities for becoming acquainted with the apparatus, I could only describe it as far as my imagination would allow, candidly telling the examiner that I had never had the opportunity of seeing one. On finishing my description of the process I was not questioned further. Qualitative and volumetric analyses were not touched upon, nor had I a single question on light, heat, electricity, or magnetism, in all of which I was well read, having studied them long and carefully. I leave it for your readers to consider whether any examiner can competently judge of a candidate's skill and knowledge as a pharmaceutical chemist by questioning him for about fifteen minutes on starch, sugar, and vinegar. The whole of my questions are embraced in some half-dozen pages at the end of Dr. Attfield's work. If in the case of the "mattrass" I had attended a compulsory course of lectures in a laboratory (not that I advocate this, as the present regulations are quite stringent enough), the question would have been a fair one, but in my case it could hardly be said to be so, and the Major, as at present conducted, will always be unjust to some. Moreover, much depends in all *viva voce* examinations on the examiner. A written examination, as the regulations of the Major now stand, would, I consider, be far more just to all candidates than the *viva voce*, which is causing much dissatisfaction and discouragement.

I am, yours, &c.,
August 31, 1875. A Minor Man.

TRADE REPORT.

A FURTHER diminution occurred last month in the declared value of our national exports of 1,084,880*l.*, being the difference between 19,418,876*l.* and 20,503,756*l.* in August, 1874. About half of this falling off is attributed to iron and coal, in each of which, however, there was an increase in the quantity exported, the remainder being found under the heads of the principal textile fabrics, though only to a small extent, and chiefly under haberdashery, arms, &c., bags and sacks, jute manufactures, beer and ale, hardware and wool.

The declared value during the first eight months this year was 9,965,188*l.* less than last year, and 21,889,451*l.* less than in the corresponding period in 1873.

Dulness still prevails in the chemical market, and prices range even a shade lower than hitherto. But there are indications of firmer quotations, as buyers seem more anxious to place their orders at these figures, and it is said that considerable indents for chemical products are in the hands of merchants awaiting execution.

Quicksilver is again on the advance. A good trade was doing last week at 11 guineas, when on Friday last the seller suddenly stopped the supply. Second hand lots went immediately to 12*l.*, and as much as 12*l.* 7*s.* 6*d.* was paid. Mercurials have of course advanced also.

Little has been done in opium, and prices are without alteration. Oil of peppermint (Hotchkiss's) has advanced to 18*s.*, but complaints come from America that peppermint oil, generally, is adulterated, and sometimes largely, with oil of pennyroyal, and one of the New York papers has given a process for the detection of this fraud. To a clear solution in alcohol of one drachm of chloral hydrate mixed with half a drachm of acid sulphuric, an equal quantity of the suspected oil is added, and if pure a bright cherry-red colour will result, but with pennyroyal a dirty olive green colour ensues, which deepens on standing.

The first really fine parcel of castor oil that has been on the market for a long time only brought ½*d.* per lb. more than what has been selling as first seconds for some time, and with over 700 cases to sell 4½*d.* was the highest figure. A rather brisk competition for some good heavy cardamoms ran up the price from 4*s.* 9*d.* for the first lot to 5*s.* 2*d.* for the last lots, but light and shelly sold at previous rates. Vanilloes have offered more freely and prices are lower, 6½ to 7 inches being obtainable at 35*s.* Ambergris has also come down in price, the figure being 38*s.*, and no buyers. This contrasts curiously with the sensation figures of 12 and 18 months ago. Balsam of Copaiba from Manaos, noticed last month, is obtainable at a reduction of 3*d.* from the price of Para, but at that it will require a lot of selling, as the appearance and consistence seem fully threepence worse. Its destiny will probably be mixing purposes. Not a single bale of good Tinnivelly senna was offered, and an attempt to raise prices for common hardly succeeded, for though one broker bought in nearly the whole of his lot, another sold a good portion of his at ¾*d.* upwards. Quassia wood has got to the high price of 11*l.* 10*s.*, and held at that. Rhubarb of good quality is worth 4*s.*, but can be obtained as low as 9*d.* Citronelle oil is worth the attention of buyers now, as 1½*d.* must surely be considered a low figure, and the same may be said of lemon grass at 2½*d.* Orange peel imported from Nagasaki would make one suppose it was Japanese, but two packages were very much like European, and were valued at 2*d.* per lb. without a buyer. Chamomile flowers have reached what may be taken as about their normal value, 56*s.* being asked for them, and 53*s.* offered. This is always so with this article, a high price being invariably demanded at first, which is diminished weekly. Last year's crop could be had for 30*s.* A very limited quantity of Colombo of fair quality was unsold at 22*s.* 6*d.* Nutmeg oil of Indian make has fallen to 6½*d.*, and as the merchants or manufacturers there seem to be alive to the fact that such kinds of produce are more profitable to make there than to send the common raw material here for that purpose we shall doubtless have larger supplies. One notable instance was a jar of sandal wood oil, weighing nearly 2 cwt., at the figure of 1*s.* 4*d.* per oz., as against sandal wood at 60*l.* to 80*l.* per ton. Spurious cinchona, or, as it is called, Maracaibo bark, realised 2*d.* to 2½*d.* What becomes of it?

The new scammony is now arriving, and extra high prices are demanded for pure virgin qualities. The English lavender and peppermint crops are reported bad this year in consequence of the heavy rains a month ago. High prices for the oils are anticipated.

Olive oil is anomalous. The crop has been generally reported as an unusually abundant one. Now at the last we are told that "the news of a crop nearly destroyed receives daily confirmation," and the market is advancing in sympathy with this intimation. That despatch is from Messina, but surely the interior of Italy or Sicily cannot be so hopelessly distant that fairly accurate information cannot be obtained. We expect to find this news emanate from some small district, not important enough to affect the market permanently.

Trade Memoranda.

MR. W. MARLEY, of Newcastle-on-Tyne, has removed from Grainger Street to 64 Northumberland Street.

IN CONSEQUENCE of the death of Mr. F. Curtis, the business in Baker Street, carried on by Curtis & Co., was recently offered for sale, and was bought by Mr. Jameson, of Hastings.

MESSRS. THORNLEY & KNIGHT, varnish manufacturers, of Lionel Street, Birmingham, have purchased the old-established business of Messrs. Joseph Lane & Son, varnish makers, of Alcester Street, in the same town.

MESSRS. DAVENPORT & Co. have established a factory for soda water machinery, and all the extras pertaining thereto, at 99 High Holborn. A novelty in their announcement is that, believing the soda water trade to be yet only in its infancy, they are prepared to supply machinery on the Three Years' System; just as pianos are so often sold, we presume.

WE HAVE received from Mr. Thomas Whiffen, Quinine Works Battersea, London, some specimens of "Quinetum" and "Sulphate of Quinetum," such as are advertised in this journal. Quinetum professes to be the alkaloids generally as contained in the East Indian red bark. The samples reached us too late for careful examination this month, but we intend to report on them more fully in October.

Marriages.

FRASER—WRIGHT.—August 12, at All Saints' Church, Clapham Park, by the Ven. Archdeacon Boys, M.A., Vicar, assisted by the Rev. James McConnel Hussey, M.A., Vicar of Christ Church, North Brixton, William Joseph Fraser, of 78 Dean Street, W., and Bedford Lodge, Clapham Road, to Emily Stern, second daughter of William Valentine Wright, Esq., of Alde House, Thornton Road, Clapham Park. No cards. At home last three Tuesdays in October.

GOSSE—EPPS.—August 18, Edmund W. Gosse, of the British Museum, to Nelly, daughter of the late George N. Epps, M.D., of 20 Devonshire Street, Portland Place, W.

Obituary.

CRISPE.—August 2, Mr. Henry Crispe, chemist and druggist, of Sutton Valence, Kent, aged 59.

HARTNOLL.—August 5, at Richmond, Edward Rennels Hartnoll, of 7 Tichborne Street, Haymarket, and Brewer Street, Golden Square, W., aged 39 years.

HAW.—August 18, Mr. William Haw, of Spalding, Lincolnshire, drowned while bathing in the Nene River, Northampton, aged 21.

STAFFELL.—August 29, suddenly, Henry Staffell, chemist and druggist, at Magdalene Street, Glastonbury, aged 73.

WILSON.—August 31, Charles Wilson, registered chemist's assistant, at Betley, Staffordshire, aged 32.

WINDLE.—September 8, at 452 Edgware Road, Maida Vale, W., of exhaustion, consequent on congestion of the lungs, Mr. William Windle, pharmaceutical chemist, aged 52.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.

	1875.					1874.				
ACIDS—	s.	d.		s.	d.	s.	d.		s.	d.
Acetic ....per lb.	0	4	to	0	4½	0	4	to	0	0
Citric .... ,,	2	10½	..	2	11	4	3	..	4	4
Hydrochlor......per cwt.	5	0	..	7	0	4	0	..	7	0
Nitric ....per lb.	0	5	..	0	5½	0	5	..	0	5½
Oxalic .... ,,	0	5½	..	0	5¾	0	7	..	0	0
Sulphuric ...... ,,	0	0¾	..	0	1	0	0¾	..	0	1
Tartaric crystal.. ,,	1	6¼	..	1	6½	1	7½	..	0	0
powdered ,,	1	6¼	..	1	6½	1	7½	..	0	0
ANTIMONY ore ......per ton	260	0	..	300	0	200	0	..	240	0
crude .. per cwt.	37	0	..	0	0	0	0	..	0	0
star...... ,,	59	0	..	0	0	46	0	..	47	0
ARSENIC, lump ...... ,,	30	0	..	0	0	20	0	..	0	0
powder.... ,,	13	9	..	14	0	10	0	..	10	6
BRIMSTONE, rough ...per ton	150	0	..	0	0	145	0	..	150	0
roll .. per cwt.	10	0	..	10	3	10	0	..	10	6
flour.... ,,	12	6	..	15	0	11	6	..	12	6
IODINE, dry ....per oz.	0	7½	..	0	0	0	8½	..	0	0
IVORY BLACK, dry .. per cwt.	8	6	..	0	0	8	6	..	0	0
MAGNESIA, calcined..per lb.	1	6	..	0	0	1	6	..	0	0
MERCURY ....per bottle	240	0	..	247	6	460	0	..	0	0
MINIUM, red ...... per cwt.	24	6	..	25	0	25	0	..	25	3
orange .. ,,	37	0	..	0	0	37	0	..	0	0
PRECIPITATE, red . per lb.	4	10	..	0	0	7	0	..	0	0
white ,,	4	9	..	0	0	6	11	..	0	0
PRUSSIAN BLUE .. ,,	0	0	..	0	0	0	0	..	0	0
SALTS—										
Alum ....per ton	150	0	..	157	6	170	0	..	175	0
powder...... ,,	165	0	..	170	0	185	0	..	0	0
Ammonia :										
Carbonate ...... per lb.	0	7	..	0	7¼	0	7	..	0	0
Hydrochlorate, crude, white .... per ton	640	0	..	680	0	640	0	..	0	0
British (*see* Sal Am.)										
Sulphate........ per ton	380	0	..	390	0	360	0	..	370	0
Argol, Cape ......per cwt.	88	0	..	95	0	90	6	..	98	0
Red........ ,,	74	0	..	94	0	76	0	..	86	0
Oporto, red. ,,	34	0	..	34	0	32	0	..	33	0
Sicily ...... ,,	60	0	..	62	6	53	6	..	58	6
Ashes (*see* Potash and Soda)										
Bleaching powd...per cwt.	8	0	..	8	6	10	6	..	11	6
Borax, crude...... ,,	40	0	..	60	0	45	0	..	70	0
British refnd. ,,	53	0	..	0	0	68	0	..	0	0
Calomel ....per lb.	4	4	..	0	0	6	6	..	0	0
Copper :										
Sulphate ....per cwt.	25	6	..	26	0	26	0	..	28	0
Copperas, green..per ton	65	0	..	70	0	65	0	..	70	0
Corrosive Sublimate p. lb.	3	8	..	0	0	5	8	..	0	0
Cr. Tartar, French, p. cwt.	113	0	..	114	0	117	6	..	120	0
brown ,,	95	0	..	98	0	100	0	..	102	6
Epsom Salts ....per cwt.	6	6	..	0	0	5	6	..	6	6
Glauber Salts .... ,,	5	6	..	0	0	6	6	..	7	0
Lime :										
Acetate, white, per cwt.	11	0	..	20	0	13	0	..	21	0
Magnesia : Carbonate ,,	42	6	..	45	0	42	6	..	45	0
Potash :										
Bichromate ....per lb.	0	4½	..	0	0	0	6½	..	0	0
Carbonate :										
Potashes, Canada, 1st sort ......per cwt.	28	0	..	29	0	34	0	..	34	6
Pearlashes, Canada, 1st sort ......per cwt.	34	6	..	35	0	44	6	..	45	0
Chlorate ......per lb.	0	8¾	..	0	9	0	10½	..	0	11
Prussiate .... ,,	1	1	..	0	0	1	0	..	1	1
red .... ,,	3	2	..	3	3	2	10	..	2	11
Tartrate (*see* Argol and Cream of Tartar)										
Potassium :										
Chloride......per cwt.	7	0	..	0	0	7	0	..	0	0
Iodide ....per lb.	8	6	..	9	0	11	0	..	0	0
Quinine :										
Sulphate, British, in bottles ......per oz.	7	0	..	0	0	8	0	..	0	0
Sulphate, French ,,	6	6	..	0	0	7	9	..	0	0
Sal Acetos ......per lb.	0	8½	..	0	0	0	10	..	0	0
Sal Ammoniac, Brit. cwt.	44	0	..	45	0	44	0	..	45	0
Saltpetre :										
Bengal, 6 per cent. or under ......per cwt.	19	6	..	20	0	21	6	..	22	0
Bengal, over 6 per cent. per cwt.	18	0	..	19	0	19	6	..	21	3
British. refined ,,	23	0	..	24	0	25	9	..	26	6
Soda: Bicarbonate, p. cwt.	12	6	..	12	9	15	6	..	15	9
Carbonate :										
Soda Ash ..per deg.	0	2⅓	..	0	2 3/16	0	2⅓	..	0	0
Soda Crystals per ton	95	0	..	97	6	112	6	..	0	0
Hyposulphite, per cwt.	0	0	..	0	0	0	0	..	0	0
Nitrate ......per cwt.	11	9	..	12	0	12	0	..	0	0
SUGAR OF LEAD, White cwt.	44	0	..	0	0	45	0	..	0	0
SUGAR OF LEAD, Brown, cwt.	32	0	..	0	0	38	9	..	39	0
SULPHUR (*see* Brimstone)										

	1875.					1874.				
	s.	d.		s.	d.	s.	d.		s.	d.
VERDIGRIS .... per lb.	1	1	to	1	5	1	1½	to	1	6
VERMILION, English ,,	3	8	..	0	0	6	3	..	6	5
China ,,	0	0	..	0	0	5	6	..	6	0

DRUGS.

	1875.					1874.				
ALOES, Hepatic ....per cwt.	60	0	..	160	0	80	0	..	200	0
Socotrine .. ,,	80	0	..	205	0	102	6	..	240	0
Cape, good.. ,,	34	0	..	38	0	37	0	..	41	0
Inferior .... ,,	32	0	..	33	0	31	0	..	36	0
Barbadoes .. ,,	40	0	..	175	0	40	0	..	200	0
AMBERGRIS, grey........oz.	40	0	..	60	0	0	0	..	0	0
BALSAM—										
Canada............per lb.	1	9	..	0	0	2	0	..	0	0
Capivi .... ,,	2	7	..	2	9	2	8	..	0	0
Peru .... ,,	6	0	..	6	3	7	0	..	8	0
Tolu.............. ,,	5	0	..	0	0	2	9	..	3	0
BARKS—										
Canella alba......per cwt.	16	0	..	27	0	16	0	..	27	0
Cascarilla .... ,,	19	0	..	22	6	18	6	..	31	0
Peru, crown & grey per lb.	0	8	..	2	8	0	10	..	2	7
Calisaya, flat ,,	2	6	..	5	4	2	10	..	4	4
,, quill ,,	2	0	..	5	4	2	9	..	4	5
Carthagena ,,	1	6	..	2	1	0	8	..	2	0
E. I. .... ,,	1	0	..	5	0	0	7	..	5	0
Pitayo ...... ,,	0	4	..	1	9	0	4	..	2	0
Red .... ,,	1	6	..	4	9	1	3	..	3	10
Buchu Leaves........ ,,	0	1½	..	1	1	0	2	..	1	0
CAMPHOR, China ..per cwt.	70	4	..	0	0	82	6	..	0	0
Japan .. ,,	0	0	..	0	0	0	0	..	0	0
Refin. Eng. per lb.	1	0½	..	0	0	1	1	..	0	0
CANTHARIDES........ ,,	3	4	..	5	3	3	0	..	5	0
CHAMOMILE FLOWERS p. cwt.	35	0	..	60	0	50	0	..	84	0
CASTOREUM ....per lb.	6	0	..	24	0	4	0	..	20	0
DRAGON'S BLOOD, lp. p. cwt.	137	6	..	200	0	95	0	..	240	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices).										
Anise, China Star per cwt.	112	6	..	0	0	140	0	..	145	0
Spanish, &c. ,,	30	0	..	35	6	12	0	..	27	0
Beans, Tonquin....per lb.	1	5	..	1	8	1	6	..	2	4
Cardamoms, Malabar good .... ,,	4	0	..	5	3	4	6	..	5	3
inferior.... ,,	1	9	..	3	6	2	7	..	4	5
Madras.... ,,	2	7	..	4	0	3	6	..	3	11
Ceylon .... ,,	5	8	..	5	10	4	6	..	4	9
Cassia Fistula....per cwt.	12	6	..	15	0	14	0	..	16	0
Castor Seeds .... ,,	10	0	..	10	6	5	0	..	9	0
Cocculus Indicus ,,	13	6	..	16	0	14	0	..	17	0
Colocynth, apple ..per lb.	0	6	..	1	0	0	4	..	0	10
Croton Seeds ....per cwt.	36	0	..	38	0	42	0	..	44	0
Cubebs.......... ,,	25	0	..	26	0	22	6	..	23	6
Cummin .... ,,	15	0	..	20	0	16	0	..	20	0
Dividivi .... ,,	12	0	..	15	0	11	0	..	15	0
Fenugreek ...... ,,	8	0	..	16	0	8	0	..	16	0
Guinea Grains .. ,,	23	0	..	0	0	25	0	..	26	0
Juniper Berries ,,	10	0	..	11	6	9	0	..	10	6
Nux Vomica.. .. ,,	8	6	..	14	0	7	0	..	13	0
Tamarinds, East India ,,	20	0	..	30	0	7	0	..	14	0
West India ,,	10	6	..	16	0	11	0	..	17	0
Vanilla, large .... per lb.	57	0	..	64	6	76	0	..	94	0
inferior ,,	58	0	..	56	0	50	0	..	75	0
Wormseed per cwt.	0	0	..	0	0	0	0	..	0	0
GINGER, Preserved, per lb.	0	6	..	0	7	0	5½	..	0	8
HONEY, Chili .... per cwt.	35	0	..	47	0	32	0	..	46	0
Jamaica ,,	37	0	..	49	0	36	0	..	52	0
Australian ,,	0	0	..	0	0	38	0	..	48	0
IPECACUANHA .... per lb.	4	0	..	4	6	4	5	..	4	9
ISINGLASS, Brazil.. ,,	2	10	..	5	1	2	10	..	5	4
Tongue sort ,,	3	2	..	5	6	3	2	..	5	5
East India ,,	1	0	..	5	0	1	3	..	4	6
West India ,,	4	7	..	5	0	5	3	..	5	9
Russ. long staple	13	0	..	16	0	8	6	..	13	0
,, inferior	0	0	..	0	0	4	0	..	8	0
,, Simovia	3	0	..	4	0	3	3	..	5	0
JALAP, good...... ,,	0	7	..	0	8	0	8	..	0	9
infer. & stems ,,	0	6	..	0	6½	0	7	..	0	7½
LEMON JUICE .... per degree	0	2	..	0	2¼	0	2¾	..	0	0
LIME JUICE........per gall.	1	5	..	1	10	2	4	..	2	1
LIQUORICE, Spanish per cwt.	55	0	..	97	0	40	0	..	70	0
Liquorice Root ,,	16	0	..	30	0	11	0	..	16	0
MANNA, flaky ......per lb.	4	6	..	6	0	2	6	..	3	0
small ...... ,,	1	6	..	1	9	1	2	..	1	5
MUSK, Pod..........per oz.	16	0	..	49	0	20	0	..	43	0
Grain........ ,,	50	0	..	60	0	42	6	..	57	0
OILS (*see also separate list*)										
Almond, expressed per lb.	1	2	..	0	0	0	11	..	0	0
Castor, 1st pale.... ,,	0	4	..	0	4½	0	5	..	0	5¾
second .... ,,	0	3½	..	0	4	0	4¼	..	0	5
infer. & dark ,,	0	3	..	0	0	0	4	..	0	4¼
Cod Liver ...... per gall.	3	6	..	6	0	3	10	..	6	3
Croton .... per oz.	0	2½	..	0	0	0	3	..	0	4
Essential Oils :										
Almond ....per lb.	25	0	..	0	0	25	0	..	26	0
Anise-seed ...... ,,	10	6	..	0	0	8	6	..	0	0
Bay ....per cwt.	0	0	..	0	0	65	0	..	70	0
Bergamot ...... per lb.	10	0	..	25	0	10	0	..	23	0
Cajeput......per bottle	2	8	..	2	10	2	3	..	2	5
Caraway........per lb.	9	0	..	0	0	5	3	..	6	0⅝
Cassia .... ,,	4	4	..	0	0	4	6	..	4	9
Cinnamon ......per oz.	1	0	..	5	6	0	8	..	7	6
Cinnamon-leaf .. ,,	0	2	..	0	3	0	2⅓	..	0	5
Citronelle ...... ,,	0	1½	..	0	1⅝	0	1⅞	..	0	0
Clove ....per lb.	10	6	..	0	0	9	6	..	0	0
Juniper .... ,,	1	10	..	0	0	1	3	..	2	4
Lavender ......per lb.	2	0	..	5	6	1	10	..	5	0
Lemon.......... ,,	7	0	..	11	0	7	0	..	14	0

	1875.					1874.				
Essential Oils, *continued*:—	s.	d.		s.	d.	s.	d.		s.	d.
Lemongrass ....per oz.	0	2½	..	0	0	0	2¾	..	0	0
Neroli .... ,,	0	4	..	3	0	0	4	..	0	6
Nutmeg .... ,,	0	7	..	0	0	0	7	..	0	8
Orange..........per lb.	6	0	..	9	0	8	0	..	10	0
Otto of Roses....per oz.	13	0	..	25	0	15	0	..	22	0
Patchouli ...... ,,	2	0	..	3	6	2	9	..	4	0
Peppermint:										
American ....per lb.	20	6	..	21	6	20	6	..	21	6
English ...... ,,	35	0	..	36	0	29	0	..	32	0
Rosemary ...... ,,	1	4	..	1	10	1	4	..	1	10
Sassafras ...... ,,	2	3	..	2	6	2	3	..	3	0
Spearmint ...... ,,	12	0	..	19	0	6	0	..	18	0
Thyme.......... ,,	1	9	..	2	0	1	9	..	2	0
Mace, expressed ..per oz.	0	7½	..	0	10	0	3	..	0	3½
Opium, Turkey ......per lb.	29	0	..	30	0	33	0	..	37	0
inferior ...... ,,	12	6	..	19	0	14	0	..	29	0
Quassia (bitter wood) per ton	200	0	..	240	0	70	0	..	85	0
Rhubarb, China, good and fine ....per lb.	4	0	..	4	8	2	1	..	5	9
Good, mid. to ord. ,,	0	8	..	3	0	0	7	..	2	0
Dutch trimmed ,,	0	0	..	0	0	0	0	..	0	0
Russian .... ,,	0	0	..	0	0	0	0	..	0	0
ROOTS—Calumba..per cwt.	20	0	..	24	0	12	0	..	36	0
China .... ,,	18	0	..	20	0	18	0	..	20	0
Galangal.......... ,,	19	0	..	22	0	20	0	..	25	0
Gentian .... ,,	23	0	..	24	0	17	0	..	19	0
Hellebore .... ,,	30	0	..	33	0	30	0	..	33	0
Orris .... ,,	26	0	..	75	0	30	0	..	70	0
Pellitory.......... ,,	38	0	..	39	0	38	0	..	39	0
Pink..............per lb.	0	10	..	1	3	1	0	..	1	3
Rhatany.......... ,,	0	4	..	2	0	0	5	..	0	11
Seneka............ ,,	3	5	..	3	6	3	0	..	3	6
Snake .... ,,	0	10	..	1	0	1	4	..	1	9
Saffron, Spanish .. ,,	18	0	..	23	0	22	0	..	26	0
Salep ....per cwt.	0	0	..	0	0	170	0	..	200	0
Sarsaparilla, Lima per lb.	0	0	..	0	0	0	6	..	0	9
Para.............. ,,	0	0	..	0	0	1	0	..	1	3
Honduras .... ,,	1	3	..	2	0	1	3	..	1	7
Jamaica .... ,,	2	4	..	2	10	1	6	..	2	4
Sassafras ....per cwt.	0	0	..	0	0	13	0	..	15	0
Scammony, Virgin ..per lb.	25	0	..	36	0	25	0	..	30	0
second & ordinary ,,	7	0	..	24	0	8	0	..	24	0
Senna, Bombay .... ,,	0	1	..	0	4	0	1	..	0	5
Tinnivelly .... ,,	0	1½	..	0	10	0	1½	..	1	0
Alexandria........ ,,	0	7	..	2	6	0	3½	..	1	5
Spermaceti, refined ,,	1	4	..	0	0	1	3	..	1	4
American .... ,,	1	2	..	0	0	1	0	..	1	1
Squills .... ,,	0	3	..	0	5	0	1½	..	0	3

GUMS.

	1875.					1874.				
	£	s.		£	s.	£	s.		£	s.
Ammoniaci drop .. per cwt.	2	10	..	5	15	3	10	..	6	0
lump.. ,,	1	6	..	2	5	3	0	..	4	10
Animi, fine washed ,,	11	0	..	12	0	12	0	..	13	0
bold scraped ,,	10	0	..	10	17/6	11	0	..	11	10
sorts ...... ,,	5	10	..	9	17/6	6	0	..	10	10
dark ...... ,,	4	10	..	5	10	5	0	..	6	0
Arabic, E.I., fine pale picked .. ,,	3	0	..	3	16	3	0	..	3	12
srts., md. to fin. ,,	1	13	..	2	19	1	17	..	2	18
garblings .. ,,	0	19	..	1	15	1	2	..	1	10
Turkey, pick. gd. to fin. ,,	7	0	..	10	0	7	10	..	11	0
second & inf. ,,	3	0	..	6	18	4	0	..	7	5
in sorts .. ,,	1	10	..	2	15	2	5	..	3	15
Gedda .... ,,	1	1	..	1	4	1	0	..	1	12/6
Barbary, white .. ,,	1	10	..	1	15	1	6	..	2	3
brown .. ,,	1	5	..	1	10	1	5	..	1	16
Australian...... ,,	1	14	..	2	4	1	15	..	2	8
Assafœtida, cm. to fin ,,	0	12	..	1	18	1	7	..	2	16
Benjamin, 1st & 2nd ,,	20	0	..	28	0	12	0	..	27	0
Sumatra 1st & 2nd ,,	7	10	..	12	10	7	0	..	10	0
3rd	3	10	..	4	10	3	5	..	4	5
Copal, Angola red ,,	5	10	..	6	10	5	10	..	5	15
Benguela ,,	4	0	..	5	0	3	10	..	3	12/6
	s.	d.		s.	d.	s.	d.		s.	d.
Sierra Leone, per lb.	0	7¼	..	1	0	0	4½	..	0	10½
Manilla....per cwt.	20	0	..	34	0	9	0	..	19	0
Dammar, pale .... ,,	58	0	..	62	0	40	0	..	50	0
Singapore .... ,,	50	0	..	61	0	40	0	..	50	0
Euphorbium .... ,,	12	0	..	20	0	11	0	..	15	0
Galbanum .... per lb.	1	0	..	1	6	1	6	..	2	0
Gamboge, pckd. pipe per cwt.	195	0	..	260	0	180	0	..	280	0
Guaiacum ....per lb.	0	6	..	2	0	1	0	..	2	0
Kino..............per cwt.	50	0	..	90	0	50	0	..	90	0
Kowrie, rough .. ,,	40	0	..	50	0	23	0	..	34	0
scraped sorts ,,	51	0	..	70	0	34	0	..	50	0
Mastic, picked ....per lb.	4	0	..	5	0	4	6	..	6	0
Myrrh, gd. & fine per cwt.	120	0	..	240	0	119	0	..	280	0
ord. to fair.... ,,	75	0	..	119	0	80	0	..	115	0
Olibanum, p. drop ,,	57	0	..	63	0	62	0	..	68	0
amber & ylw. ,,	53	0	..	56	0	55	0	..	61	0
garblings.... ,,	23	6	..	32	0	23	0	..	39	0
Senegal .... ,,	2	0	..	2	5	2	15	..	3	3
Sandarac........ ,,	85	0	..	100	0	85	0	..	100	0
Shellac, Orange.. ,,	180	0	..	267	6	270	0	..	305	0
Liver .. ,,	160	0	..	200	0	250	0	..	265	0
Thus .... ,,	20	0	..	22	0	23	0	..	24	0
Tragacanth, leaf ,,	180	0	..	360	0	240	0	..	360	0
in sorts ,,	20	0	..	195	0	30	0	..	190	0

OILS.

	1875.					1874.				
	£	s.		£	s.	£	s.		£	s.
Seal, pale ....per tun	33	0	..	0	0	36	0	..	36	10
yellow to tinged ,,	31	0	..	32	0	32	0	..	35	10
brown ...... ,,	29	0	..	30	0	29	0	..	30	0
Sperm............ ,,	91	0	..	0	0	98	0	..	0	0
Cod .... ,,	41	10	..	42	0	39	10	..	0	0
Oils, *continued*:—	£	s.		£	s.	£	s.		£	s.
Whale, South Sea, pale, per tun	35	0	to	0	0	29	0	to	0	0
yellow ,,	32	0	..	34	0	28	0	..	0	0
brown ,,	29	0	..	30	0	25	0	..	26	0
East India, Fish ,,	23	10	..	0	0	25	10	..	0	0
Olive, Galipoli....per ton	0	0	..	0	0	47	0	..	0	0
Trieste...... ,,	46	10	..	47	0	46	0	..	0	0
Levant .... ,,	43	0	..	43	10	41	0	..	0	0
Mogador .... ,,	0	0	..	0	0	40	0	..	41	0
Spanish .... ,,	0	0	..	0	0	44	10	..	45	0
Sicily ...... ,,	0	0	..	0	0	43	10	..	0	0
Cocoanut, Cochin.. ,,	41	10	..	42	0	41	0	..	0	0
Ceylon ,,	38	0	..	38	0	34	15	..	35	0
Sydney ,,	30	0	..	36	0	29	0	..	35	10
Ground Nut and Gingelly:										
Bombay	0	0	..	0	0	0	0	..	0	0
Madras	34	0	..	0	0	35	10	..	36	0
Palm, fine................	36	0	..	0	0	36	10	..	37	0
Linseed..................	24	10	..	0	0	27	15	..	28	0
Rapeseed, English, pale ..	33	15	..	0	0	30	15	..	0	0
brown	31	15	..	0	0	28	15	..	0	0
Foreign, pale ..	0	0	..	0	0	0	0	..	0	0
brown	0	0	..	0	0	0	0	..	0	0
Cottonseed	30	0	..	31	10	26	0	..	0	0
Lard	59	0	..	0	0	52	0	..	56	0
Tallow	27	10	..	45	0	20	0	..	30	0
Turpentine, American, cks.	22	9	..	24	0	30	6	..	0	0
French ,,	22	6	..	22	9	0	0	..	0	0
Petroleum, Crude	0	0	..	0	0	0	0	..	0	0
	s.	d.		s.	d.	s.	d.		s.	d.
refined, per gall.	0	9⅝	..	0	0	0	8¾	..	0	9
Spirit ,,	0	9¼	..	0	9½	0	11¼	..	0	11½

SEEDS.

	1875.					1874.				
Canary............per qr.	160	0	..	200	0	86	0	..	90	0
Caraway, English per cwt.	44	0	..	45	0	0	0	..	0	0
German, &c....	0	0	..	0	0	0	0	..	0	0
Coriander	10	0	..	18	0	10	0	..	13	0
Hemp..............per qr.	36	0	..	38	0	40	0	..	42	0
Linseed, English per qr. ..	60	0	..	64	0	59	0	..	66	0
Black Sea & Azof	52	0	..	0	0	55	0	..	56	0
Calcutta ,,	55	3	..	0	0	58	0	..	0	0
Bombay ,,	51	6	..	51	9	59	0	..	0	0
St. Petrsbrg. ,,	0	0	..	0	0	54	0	..	55	0
Mnstard, brown..per bshl.	0	0	..	0	0	10	0	..	15	0
white.. ,,	10	0	..	12	0	8	0	..	11	0
Poppy, East India, per qr.	47	0	..	0	0	57	0	..	0	0

SPICES.

	1875.					1874.				
Cassia Lignea ..per cwt.	53	0	..	70	0	56	0	..	75	0
Vera .... ,,	24	0	..	48	0	24	0	..	60	0
Buds .... ,,	95	0	..	105	0	112	6	..	117	6
Cinnamon, Ceylon:										
1st quality ......per lb.	2	5	..	4	1	2	8	..	4	7
2nd do. .... ,,	2	1	..	3	4	1	9	..	3	5
3rd do. .... ,,	1	7	..	2	10	1	3	..	3	0
Tellicherry ...... ,,	3	0	..	3	5	3	3	..	3	5
Cloves, Penang .... ,,	2	2	..	2	3	2	0	..	2	1
Amboyna .... ,,	1	8	..	1	9	1	4	..	1	4½
Zanzibar.......... ,,	1	5	..	1	6	1	3½	..	1	4
Ginger, Jam., fine per cwt.	82	0	..	160	0	110	0	..	200	0
Ord. to good .... ,,	52	0	..	80	0	66	0	..	100	0
African .... ,,	46	0	..	47	0	50	0	..	52	0
Bengal............ ,,	40	0	..	42	0	42	0	..	55	0
Malabar .... ,,	35	0	..	40	0	50	0	..	51	0
Cochin .... ,,	57	0	..	104	0	72	0	..	110	0
Pepper, Blk, Malabar, per lb.	0	5⅞	..	0	6½	0	7⅛	..	0	7¼
Singapore .... ,,	0	5¼	..	0	5½	0	7½	..	0	0
White Tellicherry ,,	0	11	..	1	5	1	4	..	1	10
Cayenne .... ,,	3	0	..	3	7	1	6	..	2	2
Mace, 1st quality .. ,,	2	4	..	2	11	3	2	..	3	8
2nd and inferior .. ,,	1	3	..	2	3	2	0	..	3	1
Nutmegs, 78 to 60 to lb.	3	8	..	4	4	3	6	..	4	7
90 to 80 ,,	3	1	..	3	7	3	4	..	3	6
132 to 95 ,,	2	8	..	3	0	2	11	..	3	3
Pimenta..................	0	2½	..	0	3	0	3¼	..	0	3½

VARIOUS PRODUCTS.

	1875.					1874.				
COCHINEAL—										
Honduras, black ..per lb.	1	10	..	2	6	1	11	..	2	10
,, silver .. ,,	1	8	..	1	11	2	0	..	2	4
,, pasty .. ,,	1	7	..	0	0	1	9	..	1	11
Mexican, black.... ,,	1	9	..	1	11	1	10	..	2	1
,, silver.... ,,	1	7	..	1	8	1	8	..	1	9
Teneriffe, black .. ,,	1	9	..	3	2	2	0	..	3	8
,, silver .. ,,	1	9	..	1	11	1	11	..	2	2
SOAP, Castile......per cwt.	26	0	..	33	0	33	0	..	34	0
SPONGE, Turk. fin. pkd pr lb.	12	0	..	16	0	12	0	..	16	0
Fair to good ,,	4	0	..	11	0	4	0	..	11	0
Ordinary .. ,,	1	0	..	3	6	1	0	..	3	6
Bahama .... ,,	0	6	..	3	0	0	6	..	3	6
TERRA JAPONICA—										
Gambier ......per cwt.	28	3	..	0	0	26	0	..	26	3
Free cubes .... ,,	39	0	..	42	0	40	0	..	42	0
Cutch .... ,,	25	6	..	27	0	22	6	..	23	0
WOOD, Dye, Bar ..per ton	£4	10	..	£5	0	£5	0	..	0	0
Brazil, Branch .... ,,	18	0	..	27	0	20	0	..	26	0
,, Logs ...... ,,	9	0	..	16	0	9	0	..	18	0
Cam.............. ,,	20	0	..	36	0	22	0	..	30	0
Fustic, Cuba ...... ,,	9	10	..	9	15	9	0	..	9	10
Jamaica .... ,,	8	0	..	8	10	6	0	..	7	0
Logwood, Campeachy ,,	9	0	..	9	10	9	0	..	9	10
Honduras ...... ,,	7	10	..	8	0	6	10	..	6	15
St. Domingo .... ,,	6	5	..	6	15	5	2/6	..	5	10
Jamaica .... ,,	6	15	..	7	0	5	0	..	5	10
Lima, first pile .... ,,	11	0	..	12	0	12	10	..	14	0
Red Sanders .... ,,	6	10	..	7	0	6	10	..	6	15

NOTES AND QUERIES

G. H.—If a chemist and druggist now on the Register should choose to offer himself for examination for the sake of glory, and should fail to pass, would he be liable to be struck off the Register? Certainly not. The Registrar can only act according to law, and there is no clause in the Pharmacy Act affecting the question.

W. H. H.—For "Sheep Dipping Composition" arsenic is the usual active ingredient. 1 lb. of arsenic is sufficient for 20 or 30 gallons of water. It requires an equal quantity of salt of tartar, and double the quantity of soft soap to make it into a paste. Some authorities add sulphur. 1 lb. of arsenic is reckoned to be sufficient for 20 sheep. Tobacco water has also been recommended. Boil 4 ounces in a gallon of water, and add soft soap 1 lb,, sulphur vivum 1 lb., and (when cold) oil of turpentine 1 pint.

J. T. wants a good formula for cold cream, containing borax. Also advice as to the desirability or otherwise of adding aqua to perfumes. He has hitherto used S. V. R. 56 o.p. alone, but customers complain that the perfumes are too evanescent, so in a recent quantity containing ℥ss. Otto Rosæ to Oiij. S. V. R. he added ℥vj. Aq. Dest., with the effect of partly throwing down the otto. The following formula (Dr. Turnbull's) will settle the first difficulty:—

White wax, 1 oz.
Oil almonds, 4 ozs.
Rose water, 2 ozs.
Borax, ½ dr.
Otto, 5 drops.

Dissolve the borax in the rose water and (by the aid of heat) the wax in the oil. While still warm, mix gradually in a mortar, previously warmed. Add the otto, stirring constantly. The effect of water on perfumes is to weaken them and to cheapen them. It's no use to get up a theory especially suited to the vendor in a case like this. If the lady expects her perfume to last for ever, tell her to go to the chemist in the next street.

A Subscriber.—The "making or dealing in patent medicines" are specially exempted from the action of the Pharmacy Act, nor is there any other law to prevent you from assassinating your fellow-creatures in this popular method to your heart's content.

C. B. writes:—"Some few months back you published in your journal a formula, the ingredients being morphia dissolved in collodion, as a remedy for headache, &c. Soon after, I wrote and asked you how morphia could be dissolved in the collodion, and you told me to try if it would mix in the spirit, and let you know the result. I have done so, and the morphia is precipitated on mixing the ether of the collodion. I have tried several ways, and have not been successful at present. Perhaps you can suggest some other way." Perhaps somebody else can.

S. F.—The company you refer to is not a "limited liability" company, therefore it need not be registered. As it is quite a private concern, we cannot inform you how it pays.

S. F. N.—You might have told us how you make your lime juice and glycerine when asking for a better formula. Real lime juice and glycerine is seldom sold, and we wonder the public analysts have not attacked its substitutes ere this. It should be—

Lime juice, ½ pint
Rose water, ½ pint
Glycerine, 2 fluid ounces
Sp. Vini Rect. 2 fluid ounces
Perfume according to fancy.

But usually a perfumed mixture of lime water and oil of sweet almonds is sold as lime juice and glycerine, or more correctly as lime cream and glycerine. Some persons with more conscience than regard for their clients' comfort mix glycerine with the last-mentioned compound, and thus provide a slimy mixture admirably calculated to mat the locks of the unoffending purchaser. We plead with our correspondents not to attack us on this subject again in the course of the current volume.

Argentum.—Your request for a formula for "silvering liquid" is somewhat indefinite. Is this what you want?—

Dissolve 100 parts of sulphite of soda and 15 parts of nitrate of silver in water and dip the metal to be silvered in the solution. A better form is—

Nitrate silver, 30 gr.
Common salt, 30 gr.
Cream tartar, 3½ drms.

Moisten the mixed powder with water and rub on the article to be silvered.

Emigrant.—We do not know of any journal especially connected with the drug trade published in Australia. When a firm abroad requires an assistant from England it is usual for them to instruct their wholesale houses in London to engage one for them. You would get the best information on such matters by applying direct to some of the wholesale firms who do an export business.

J. C.—We are as earnest as yourself in the cause of temperance, but we are compelled reluctantly to limit our enthusiasm. So you must pardon us for not advocating the Permissive Bill in these columns.

We are obliged for favours from *A. W. P. M.*, *G. F. K.* and *X. Y. Z.*, which we are not able to use at present.

Spes.—The Pharmacy Act does not interfere with the making and dealing in patent medicines. Therefore if A. B. should choose to put up paregoric (for example) and label it "A. B.'s paregoric elixir," and affix a patent medicine stamp to every pot sold, however small, he would be safe though unregistered. But it must be clearly understood that even a pennyworth thus sold must bear a ½*d.* stamp. Further, according to the strict letter of the law, though it does not seem to be generally carried out, any patent medicine containing a poison according to the schedule (opium or its preparations for instance) ought to bear a poison label with name and address of the seller. It is the 16th clause of the Act which says that "nothing *hereinbefore* contained shall interfere with the making or dealing in patent medicines;" but the regulations of the sale of poisons (not the definition of the vendors) come after this clause.

A Country Subscriber.—Licenses to sell fireworks are now granted by magistrates in petty sessions; we suppose "red and green fire" would be regarded as "fireworks" if the Act were to be interpreted strictly.

A. B. asks for information respecting a preparation called "Aseptin,' as to how it may be made, or where it can be obtained in London? It is much used in Norway and Sweden, he is told, both externally and internally, as a remedy. Also, how should the following ingredients be mixed so as to form a thick creamy inseparable liniment? viz.:—

℞ Vitel. Ovi No. i.
Acid Acetic fort., ℥ss.
Spt. Tereb.
Aqua āā ʒiij.

To the dispensing query we say:—Put the vitellum ovi in a mortar, and well work with the pestle; add the sp. terebinth by very slow degrees, and make into an emulsion. Cautionsly add the water, and pour in the strong acid last. The "Aseptiu" we leave to our readers.

W. T.—The United States Pharmacopœia gives this formula for liquor potassii citratis:—

Citric acid, ½ oz. troy.
Bicarbonate of potassium, 330 grs.
Water, ½ pint.

Dissolve and strain through muslin.

Pilulæ.—Depends on what you understand by "pearl-coated." Mr. B. S. Proctor gives this formula:—Roll first in lac varnish (4 or 5 minims to the dozen pills), then in a mixture of 3 parts of French chalk and 1 part of resin in powder. A gelatine coating is put on by making a solution of gelatine (1 part in 2 of water), making the pills hard and dipping them in the solution by means of long pins. They must be dried on the pins and afterwards trimmed with a pair of scissors. Some practice is required in either case to ensure dexterity.

Cautious.—The Act of 56 George III. c. 58 prohibited the sale to brewers of substitutes for hops as well as malt; but when our paternal government repealed the hop duty they no longer interested themselves in the materials used for giving bitterness, and the sections of the Act are repealed as far as they refer to hops. This is as we understand the law; but we advise you, in order to make yourself quite secure, to send a sample of the substance, with a statement of its composition, to the Inland Revenue Laboratory, asking if there is any legal objection to its sale.

We have been asked to get up a testimonial by Mr. Thomas Mann, chemist, New Hampton, in recognition of his efforts to get the patent medicine licence equalised, which, as we reported last month, is now effected. We are not inclined to undertake this duty; but we are quite willing to say that in our opinion the trade is undoubtedly indebted to Mr. Mann's repeated efforts in this direction for the alteration lately made; and if any metropolitan chemist, each of whom will this year and in future get his patent medicine license for 35*s.* less than formerly, thinks a recognition is due to Mr. Mann of that saving, we suggest that a contribution may just as easily be sent direct as through us.

Veritas has omitted to comply with our rule that correspondents should favour us with their real name and address. The title referred to is, we believe, proprietary; but in consequence of the aforesaid neglect we do not feel ourselves called upon to get a hansom and drive half over London in order to ascertain the truth with certainty.

Tincture.—We do not know a formula for "Tincture of quilla bark." Squire says:—

"Not Official.
"Quillaya Saponaria.

"The inner bark of the tree, and called soap bark; it imparts a soapy character to cold water when macerated in it, and is much valued as a wash to cleanse the hair."

Is that the article you referred to?

Beater will find his query answered if he refers to our correspondence columns this month.

CRAWSHAW'S ANILINE DYES (CRYSTALS).

IN BOXES 6D. AND 1S. EACH.

The Proprietor, in introducing these Dyes to the Trade, claims for them the following advantages :—

One Sixpenny Box will go as far as Six Sixpenny Bottles of the Liquid Dyes.

Each Box will produce any desired shade of its own colour, according to the amount used.

The colours are the most Beautiful and Brilliant which can be produced, and comprise all the popular shades.

There is sufficient in one Sixpenny Box to Dye a Lady's Dress, or half a dozen Children's Frocks, or one hundred yards of Ribbon, &c.

There is no loss from leakage or broken bottles. The Dyes will keep any length of time if kept dry.

The Dyes can be used for an endless number of purposes, which are too numerous even to mention within the limits of a small advertisement.

The Dyes are so easy to use that anyone can use them, even without previous experience.

The Dyes are perfectly soluble in Hot Water.

Full directions enclosed with each box.

VIOLET.
MAGENTA.
PUCE.
CRIMSON.
BLUE.
MAUVE.
BROWN.
YELLOW.
BLACK.
GREEN.
PONCEAU.
PINK.
MAROON.
SCARLET.

Opinions of the Press on CRAWSHAW'S ANILINE DYES.

"The advantage of these Crystalline Dyes over the Liquid ones is in point of economy, a Sixpenny Packet being equal to a large quantity even of concentrated liquid."—*Chemist and Druggist.*

"We have tried two or three of the samples sent to us, following the directions given, which are very simple, and the results we obtained were most satisfactory. We certainly think the introduction of the Dyes in this form will render them still more popular than they have hitherto been."—*Mather's Monthly Price Current.*

"There are few Englishwomen, probably, who are not aware of the value of manageable Dyes for domestic purposes, or of the economy effected by their use. Fluid Aniline Dyes are more or less familiar to us all, but the Crystal form introduced by Mr. Crawshaw is a novelty. The colours they produce are unquestionably beautiful; the mode of employing them is as simple as it can possibly be, while almost anything in the shape of Silks, Ribbons, Feathers, and Woollen Goods can be dyed with them."—*Exchange and Mart.*

"Mr. E. Crawshaw, of Burnley, is introducing Aniline Dyes in the dry form, and has submitted specimens of seven different colours, the majority of which we have practically tested. The colours are certainly very brilliant, and lead one irresistibly to reflect upon that wonderful discovery of modern times which has resulted in the elimination of splendid dye-matters from so unpromising a substance as coal-tar. The Aniline Crystals are packed in small boxes to retail at 6*d.*, and as they are unquestionably cheap, will doubtless find ready appreciation. Capital Ink may be made from most of the colours—Violet in particular."—*British Trade Journal.*

For Export, the Dyes are packed in 6-Gross Tin-lined Cases, either assorted or separate colours.

EDW. CRAWSHAW, 64 ST. JAMES' STREET, BURNLEY, LANCASHIRE.

Wholesale Agents: Newbery & Sons, Barclay & Sons, Sanger & Sons, Crotch & Co., London; W. Mather, London and Manchester; Goodall, Backhouse & Co., Leeds; Wm. Foggitt, Thirsk; McMaster, Hodgson & Co., Dublin, and most Wholesale Houses. *Applications for Agencies for America and the Colonies respectfully invited.*

EVERY CHEMIST SHOULD BOTTLE THE "C. O." MARKING INK.

THE "CHEMIST'S OWN" INDELIBLE MARKING INK.

SOLD ONLY IN 4 OZ. AND 8 OZ. STOPPERED BOTTLES.

Is guaranteed to be superior to all others, and the sale of it, in half-drachm and drachm bottles, will prove far more remunerative than any of the numerous Marking Inks now brought before the notice of the trade.

It is also specially adapted for Export.

N.B.—Special Terms to Wholesale and Export Agents.

OPTIMUNDO
GFK&Co

From The Chemist and Druggist.

"A real novelty in the marking ink trade is something worth noting. Messrs. G. F. Kneen & Co., 148 Strand, advertise that they supply a first-rate marking ink in bulk, thus giving chemists the opportunity of putting up their own as required."

A Packet of "Directions for Use Labels" supplied gratis on application.

Sold only in Stoppered Bottles, containing 4 fluid ozs. 5s. 6d., 8 ozs. 10s. 6d., less usual discount, by S. Maw, Son & Thompson; W. Mather; Lynch & Co.; the principal Wholesale Houses, and the Sole Proprietors and Manufacturers,

G. F. KNEEN & CO., 148 STRAND, LONDON, W.C.

DEPOT FOR CHARLES KERSHAW'S PREPARATIONS FOR THE TOILET.

TO CHEMISTS AND DRUGGISTS.

NEW FRENCH PLATE POWDER

FOR CLEANING ALL

Jewellery, Gold, Silver, and Plated Goods, Copper and Brass Work, Mirrors and Windows,

With greater rapidity and less labour than any of the Compositions now in use. Also,

NEW POWDER FOR RESTORING PLATED GOODS

IN THE COURSE OF A FEW MINUTES.

Guaranteed to be free from any combination of Mercury. Prices and Trade Discounts on application to

MORGAN, ALLSOPP & CO., 42 Cannon Street, LONDON, E.C.

Sample Box of either on receipt of 1s. in stamps. Country Agents Wanted.

FRICTION.

The article superior to all others for applying Friction to the Skin is the

PANSTREPTON BRUSH.

(CONDRON, HARTSHORNE & CONDRON'S PATENT).

Price Lists of all Wholesale Houses, or of the Sole Manufacturer,

R. CONDRON,
2 BINGFIELD STREET, LONDON, N.

PUBLIC APOLOGY!!

MR. SALTERS PERFECT PATTERN.

PATRONIZED BY ROYALTY.

Recommended by Dentists.

REGISTERED.

THE PROPRIETOR OF
Mr. SALTER'S PERFECT PATTERN TOOTH BRUSH and
OCTOPUS DENTIFRICE

Regrets being compelled to disappoint so many of his Customers through the non-execution of their Orders; but the demand having been almost unprecedented, it has been unavoidable. Arrangements, however, have now been made by which he hopes to prevent any delay whatever in the future.

Price 54s. to 90s. per Gross.

CAUTION!!—Success has produced imitations of this registered Pattern Brush. Sellers, as well as makers of them, are liable to law proceedings.—(See *Betts* v. *Rimmel*).

Observe the Correct Name on the Brushes.

SPONGE.

M. PETERSON & CO., Importers,
66 SOUTH JOHN STREET,
LIVERPOOL.
For Home, Foreign, and Colonial Markets.
Wholesale only.

LEECHES FRESH FROM THE MARSHES.

WARRANTED HEALTHY.

	CASH PRICES PER 100.
Finest Hambro, Speckled	10*s.*
Medium „ „	8*s.*
Small „ „	7*s.*
Medium „ Green	7*s.*

Fifty or more sent post free to any part of the Kingdom on receipt of remittance. A less quantity charged 2*d.* extra for postage. P.O.O. payable at West Derby Road.

JAS. WILLIAMS, LEECH IMPORTER, 187 WEST DERBY ROAD, LIVERPOOL.

SOAP WORKS, SOVEREIGN ST., LEEDS.

ESTABLISHED UPWARDS OF 50 YEARS.

JOHN N. PICKERING,

MANUFACTURER OF

OLIVE & CROWN SOFT SOAPS,

AND

HARD SOAPS USED FOR MANUFACTURING PURPOSES.

COPYRIGHT—ORIGINAL—AND ONLY GENUINE.

WHITAKER & GROSSMITH'S PURE WHITE GLYCERINE SOAP.

Richly perfumed, and possessing the Emollient and Cosmetic properties of Glycerine for the Skin and Complexion.

1s. 6d. Boxes of Three Tablets. 12s. per Dozen Boxes.

SPECIAL ARTICLES PARTICULARLY NOTED FOR THEIR EXCELLENCE:

TOILET SOAPS.			Per doz.
Cent-Fleur (*copyright*)	2/6	Boxes of 3 tablets	20/
Jockey Club ...	1/6	„	12/
Musk Windsor ...	1/6	„	12/
Sandringham ...	1/6	„	12/6
Glycerine Skin ...	1/	„	8/
Semi-Cut Bars ...	1/	Bars of 6 kinds	8/6

BOUQUETS.		Per doz.
Cent-Fleur (*copyright*)	Glass Stoppered or Sprinkling cap Bottles.	12/ 18/ & 24/
Inimitable		
Pearl of Perfumes...		
Stephanotis ...		
White Rose... ...		
Ylang-Ylang ...		

POMADES, &c.	Per doz.
Cent-Fleur (*copyright*)	8/, 12/ & 20/
Glycerine Lime Cream	8/, 12/ & 18/
Brilliantine	8/, 12/ & 20/
Anglo Eau de Cologne	8/, 8/6 & 12/6
Bay Rum Extract	12/
White Cherry Tooth Paste	8/ & 12/

TRADE PRICE LISTS SENT AND ORDERS EXECUTED THROUGH WHOLESALE HOUSES, OR DIRECT FROM THE MANUFACTURERS,

WHITAKER & GROSSMITH, Wholesale Perfumers, 120 Fore St., City, London.

RIMMEL'S

PHOTOCHROME.

A NEW POMMADE

To Restore Grey Hair and Beard to their original colour, through the agency of LIGHT.

Rimmel's Photochrome acts on a new and totally different principle. As its name indicates, it restores to Grey Hair and Beard their lost colour through the agency of Light, which gradually develops the shade, passing from the lightest *blond* to the darkest black. Far from drying up the hair, as do all progressive dyes and so-called *Hair Restorers*, it nourishes them and promotes their growth.

Rimmel's Photochrome is warranted to contain no lead, mercury, or any other ingredient capable of affecting the health in any way.

The Photochrome is principally suitable to hair that is just turning grey; but when it is already quite grey it is preferable to use, for the first time, Rimmel's Instantaneous Liquid Hair Dye, which will produce at once a perfectly natural shade, repeating the operation every three months, and keeping up the colour in the intervals by means of Photochrome.

TRADE MARK.

Price of the PHOTOCHROME, 3s. 6d.; of the HAIR DYE, 5s. 6d.; with the usual allowance to the Trade.

EUGENE RIMMEL,

PERFUMER BY APPOINTMENT TO H.R.H. THE PRINCESS OF WALES,

96 STRAND; 128 REGENT ST.; & 24 CORNHILL, LONDON.

DETAILED LIST ON APPLICATION.

SOFT WHITE HANDS.

(Trade Mark, entered at Stationers' Hall).

Wheeler's Glycerine Jelly, in neat cases, each containing 1 doz. 6*d.* or 1 doz. 1*s.* bottles. Sold by the Wholesale London Houses, also by Goodall, Backhouse & Co., Leeds; Wm. Foggitt, Thirsk; Raimes & Co., and Clarke, Bleasdale & Co., York; Evans, Sons & Co., and J. Thompson, Liverpool; John Ismay, Newcastle-on-Tyne; James Woolley, Sons & Co., Manchester.

PROPRIETOR:

C. WHEELER, Ph. Chemist,
143 Hackney Road, London.

NOTICE TO THE TRADE.

RUTTER'S REGISTERED OSTRUTHIUM,

Recommended by eminent Dentists and Patronised by Royalty,

Is most effective for whitening and beautifying the Teeth, preventing Decay, and inducing a healthy action of the Gums.

It bears a good profit, is ornamental in appearance, and where introduced the sale constantly increases.

In Bottles, 1s. each.

LONDON AGENTS.—Sanger & Sons, Tidman & Son, Sutton & Co., and Newbery & Sons; or of the Proprietor,

RUTTER & CO., Ostruthium Manufactory, Combe Martin,
Barnstaple, NORTH DEVON.

FINEST

LAVENDER WATER,

SPECIALLY PREPARED BY

SAMUEL FOULGER & SON,

WHOLESALE AND EXPORT DRUGGISTS,

133 Saint George Street,
LONDON.

ESTABLISHED 1760.

In original Bottles of	4 ozs.	6 ozs.	8 ozs. and 16 ozs.
At..	2/-	2/9	3/4 6/6 each.

In bulk, 5/6 per lb.

A Liberal Discount allowed to the Trade.

JUDSON'S DOUBLE GUM.

"A GUM THAT WILL STICK."
(Registered.)

Retail.		Per Doz.
1s.	1 Dozen in Box, with 1 Dozen Brushes and Caps .. 1 Show Card (Registered)	8s.
6d.	1 Dozen in Box, with 1 Dozen Brushes and Caps.. .. 1 Show Card (Registered)	4s.
4d.	1 Dozen in Box	2s. 4d.
1d.	1 Gross in Box, or ½ Gross in Box .. .. per gross	8s.
1s.	Pints, 1 Dozen in Box .. .. per dozen	8s.
6d.	Half-pints, 1 Dozen in Box .. .. .. per dozen	4s.

GUM.—"A Gum that will stick" has been a long-sought-for requisite. Daniel Judson & Son's Double Gum effects this desideratum, in addition to which it is got up in a most attractive style. The show-card upon which the bottles are exhibited being indeed unique, has been protected by "registration," and is a very ingenious arrangement, admirably answering its purpose for displaying the Gums, either in the window or on the counter, being adapted to stand firm or hang on a nail.—Vide *Monthly Circular*. N.B.—The Sixpenny Export Gum (new) packs with great economy and safety.

Daniel Judson & Son, Southwark St.. London.

At the Dublin Agricultural Show of 1867, a Celebrated Bull, named

"SIR CUPISS BALL,"

OBTAINED THE FIRST PRIZE.

Mr. CUPISS, *of DISS, NORFOLK, thinking the name might have reference to his world-famed* **CONSTITUTION BALLS**, *wrote to the Proprietor of the Animal, asking him the question, and was gratified by receiving in reply the following flattering Testimonial:—*

Milton House, Clonmellon, Sept. 24th, 1867.

Sir,—I found your note here on my return from the Continent, on Saturday evening last. With respect to my Bull, "Sir Cupiss Ball," that name was given to him owing to your medicine having in my opinion *saved his life.* I bought him, looking very badly, with his dam, at a monthly sale, and on his arrival at my place he was in a most delicate state; it was then discovered that his dam didn't give him one-tenth of the milk required to keep him in health, and we could not get him to take any other milk, and he would only use the smallest quantity of roots, *no* cake. A friend of mine then advised me to try your "Balls," making four parts of one at first, and increasing gradually until he was able to take an entire one. In a short time his appetite improved, and soon he became able to use as much cake and roots as was necessary; from this period he throve apace, and I never had an animal easier to keep in condition. I exhibited him four times, and he obtained Six First Prizes (that is, four first as best of his class, and two first as best Hereford Bull shown). I am bound in gratitude to give you any information you require in reference to "Sir Cupiss Ball."

To Mr. Cupiss, Diss, Norfolk. Feeling grateful for the benefit received, I am, your obedient servant, P. J. KEARNEY.

IMPORTANT TESTIMONIALS to the good results produced by using

CUPISS'S CONSTITUTION BALLS.

The following are extracted from letters of Consultation and otherwise:—

Mr. S. ROUNTHWAITE, of Shinrowe, Roscrea, Ireland, writes:—

I have great pleasure in adding my testimony to that of others of the excellency of your Constitution Balls. I most heartily recommend them to all who have Horses, and wish to keep them in good health and good looks.

The following is from Mr. M. BIDDELL, Playford, Ipswich, who took the Two First Prizes at the Bedford R. A. S. of England last year for the best two-year old Suffolk Cart Colt and Filly—

Sir,—But for the use of your Constitution Balls, I could not have sent my Colts to the Bedford R. A. S. of England in such prime condition, and I wish to add that I find them equally beneficial for Neat Cattle.

Mr. W. ARMSTRONG, of Fairfield, Kendal (the proprietor of the two famous Horses, "Cashier" and "Banker," which have gained so many First Prizes at the Islington and other Horse Shows), writes—

Your Constitution Balls are the only ones I have used for upwards of ten years, and no man knows the value of them; I have used them for Cattle as well as Horses, and they are the only thing that I ever tried could cure scouring in young Cattle.

SEE OTHER TESTIMONIALS WITH EACH PACKET.

The CONSTITUTION BALLS are Prepared by the Proprietor,

FRANCIS CUPISS, M.R.V.C.S.,

Author of the "Prize Essay" on the Diseases of the Liver of the Horse.

Sold by all Chemists and Medicine Vendors, in Packets of Three Balls, 1s. 9d., and Six Balls, 3s. 6d.; or Seven Large Packets for One Guinea, or Seven Small Packets for Half-a-Guinea.

Any gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

Wholesale and Export Agents—BURGOYNE, BURBIDGES & CO.

HENRI'S PATENT CATTLE FEED CO.,

STEAM MILLS, REFORM STREET, HULL.

TERMS to DEALERS and AGENTS for the Sale of Henri's Patent Medicated Powders for Conditioning Horses, and the other Feeds named as under.

	Charged to Dealers at	Sells to Consumers at
Henri's Patent Medicated Powders for Conditioning Horses. Whole boxes, containing 216 feeds	34/	46/
Henri's Patent Medicated Powders for Conditioning Horses. Half boxes, containing 108 feeds	18/	24/
Henri's Patent Medicated Powders for Conditioning Horses. Quarter boxes, containing 54 feeds	9/6	12/6
Henri's Patent Calf Rearing Feed, for daily use, in bags, per cwt. .	33/	42/
Henri's Celebrated Feed for general use, containing 4 gross of 4 oz. penny packets, in cases, per case . . .	40/	48/

REGISTERED TRADE MARK

TESTIMONIALS VOLUNTARILY PRESENTED.

Moortown House, April 14th, 1875.

Mr. C. G. Howard, Manager.

Dear Sir,—It affords me great pleasure to bear testimony to the quality of your Patent Conditioning Powders for Horses; they are good for all kinds of stock, and keep horses very healthy by mixing with their food. The high price of them of course shows that they are to be given sparingly and with judgment, and more as a relish, which causes the stock to partake of nice ordinary cut food. The Calf Rearing Feed I have also found very valuable.—Yours faithfully,

G. B. SKIPWORTH.

Bredwardine, Hereford, April 21st, 1874.

Dear Sir,—In reply to yours of the 20th inst., I consider your Patent Medicated Horse Feed an excellent thing for horses after a hard day's work, or if weak and off their feed. My horses are particularly fond of it in chilled water, instead of oatmeal, after hunting or any other hard work.

Yours very truly,
FRANCIS EVANS.

Cheltenham, December, 1868.

Dear Sir,—Henri's Patent Cattle Feed is certainly the most extraordinary article I ever used for increasing strength and vigour in poor and delicate horses, and effectually promoting their appetite. I have had the most convincing proof, therefore can strongly recommend it. I have also used the Medicated in chilled water, instead of gruel, for my hunters, and find it very effectual. I endeavour to persuade every one I know to give it a trial, feeling assured that when once used they will appreciate the value of so good and essential an article for horses.—I am, dear Sir, yours respectfully,

H. G. ENGLISH.

Duffield, near Derby, May 14th, 1866.

Mr. C. G. Howard, Manager, Henri's Patent Cattle Feed Company, Hull.

Sir,—Enclosed we hand order for a further supply of the Horse Powders and Daily Feed. We have now used it for more than twelve months, and have pleasure in informing you that it has our full and unqualified approval. We can strongly recommend it to all as a very valuable addition to the ordinary food for horses; certainly ours are very much improved through partaking of it.—Yours respectfully,

BENTON & WOODIWISS, Contractors.

Mr. C. G. Howard, Manager,—Will you forward me another box of "Henri's Horse Powders." I am quite out. I find it is over fifteen years since I first began to use them. They seem to suit my cab horses very well; indeed, I seldom have anything amiss with them, and this I attribute to your powders. I often, when sending a horse on a long journey, give the man a powder to take with him. I find it greatly assists the animal by its stimulating properties. As an alterative I find they are first-rate.—Yours truly, WM. GROOCOCK.

Stanton-on-Wye, near Hereford,
April 24th, 1874.

Messrs. Henri's Patent Cattle Feed Co.

Gentlemen,—I have now used your Medicated Horse Feed for many years, and have no hesitation in stating that it is one of the best things I know for assisting to get horses into condition, as well as to use afterwards. I always give it after hunting instead of gruel; in fact, I find it answer every purpose for hunters, hacks, or harness horses. I have recommended several friends to use it, and they are all equally satisfied of its good effects.

Faithfully yours, P. B. GILES.

For other Testimonials, Directions for Use, and Analysis, see our Circular, which will be forwarded post free on application to the above address.

FIRST-CLASS AGENTS WANTED WHERE NOT ALREADY APPOINTED.

Index to Advertisements, see pages 27 and 28.

CAUTION.—Note well that every Box, Tin, Bottle, and Packet of the Genuine Articles bear the Trade Marks, or fac-simile Signature of the Proprietor.

WALTON'S ANIMAL MEDICINES

{ For the prevalent Diseases of **Horses, Cattle, Sheep, Pigs, Dogs, Poultry, Pigeons, Game,** and all other Birds and Animals.

Their value cannot be estimated, whilst the cost is most trifling. Once tried, always used. They recommend themselves.

DURING his many years' engagement in the various branches of Chemistry and Medicine, the Proprietor has devoted much special study and attention to the Diseases, Treatment, and Management of Live Stock and Pet Animals; and the very flattering success which has everywhere attended the use of his Preparations renders it unnecessary to do more than give a brief description of them :—

WALTON'S TONIC POWDER for Horses, Cattle, Sheep, Pigs, &c., in Debility, want of Appetite and Condition, Loss of Milk, Pleuro-pneumonia, Foot-and-Mouth Disease, Influenza, &c., is a wonderful restorative, and an occasional dose to healthy stock is a preventive o contagious and other diseases. Tins, 1*s*., 2*s*. 6*d*., 5*s*, and 10*s*.
WALTON'S GRIPE MIXTURE for Cholic in Horses, &c. Bottles, 2*s*.
WALTON'S ANTIMONIAL HORSE POWDER for Purifying the Blood, &c. 1-lb. packets, 1*s*.; also in kegs.
WALTON'S DIURETIC CONDITION BALLS, unequalled for Swollen Legs, Greasy Heels, Gravel, &c. Packets, 1*s*. and 2*s*.
WALTON'S PURGING BALLS, the safest and best Horse Physic ever prepared. 6*d*. each; packets of six, 2*s*. 6*d*.
WALTON'S COUGH BALLS, remarkable for curing Coughs, Colds, Influenza. Fevers, &c. Packets of six, 1*s*. 6*d*.
WALTON'S WORM BALLS effectually eradicate every species of Worms in Horses, &c. Packets, 1*s*. and 2*s*.
WALTON'S ARNICA LINIMENT for Lameness, Sprains, Stiffness, Sore Udder, Influenza, &c. Bottles, 1*s*. 6*d*. and 2*s*. 6*d*.
WALTON'S ARNICA LOTION allays Swelling and Inflammation. prevents Fester, and cures Bruises, &c. Bottles, 1*s*. and 2*s*.
WALTON'S LIQUID BLISTER for Curbs, Splints, Sprains, Windgalls, &c. Bottles, 1*s*.
WALTON'S BLACK OIL, an extraordinary cure for Cuts and Wounds of every description. Bottles, 1*s*. and 2*s*.
WALTON'S MANGE LOTION, a non-poisonous and unfailing remedy for mange and all Skin Diseases. Btls. 1*s*., 2*s*. 6*d*., 5*s*.
WALTON'S INSECT LOTION destroys with safety Lice, Ticks, Fleas, Bugs, and all Parasites. Large bottles, 1*s*.
WALTON'S FEVER AND APERIENT DRINK, the best Medicine for Colds and obstructed Perspiration, &c., in Cattle. Retailed at 14*s*. per doz.
WALTON'S CLEANSING DRINK for new-calved Cows should never be omitted. Retailed at 14*s*. per doz.
WALTON'S ANTISEPTIO WASH for the Foot-and-Mouth Disease, Foot-rot, and Foul. Bottles, 2*s*.
WALTON'S DISTEMPER PILLS } 1*s*., 2*s*., 4*s*., and 10*s*. Boxes, for all Diseases of Dogs.
WALTON'S CONDITION PILLS }
WALTON'S ROUP PILLS. Boxes, 1*s*., 2*s*., 4*s*., and 10*s*. } For all Diseases of Poultry, Pigeons, Game, and Cage Birds.
WALTON'S TONIC PASTE. Tins, 1*s*., 2*s*. 6*d*., 5*s*. and 10*s*. }

Prepared only by JOHN WALTON, Steam Laboratory, Croydon. { Depôt for Brown's Aromatic Compound, Dog Soap, Worm Pastilles, &c.

Obtainable through the Wholesale Houses, or direct. Trade Prices and Terms (which a:e liberal) on application.

ROUP & CONDITION PILLS

For all Diseases of Poultry.

A carefully prepared Medicine that after Twenty Years' Test has an ever increasing sale.

In Boxes, price 1s., 2s., 4s., and 6s. each, according to size.

POST FREE ON RECEIPT OF STAMPS.

WHOLESALE—

MESSRS. BARCLAY & SON,
FARRINGDON STREET.

RETAIL OF THE PROPRIETORS—

JOHN BAILY & SON,
13 MOUNT STREET, GROSVENOR SQUARE,
LONDON.

RATS! RATS! RATS!

Notice to the Retail Chemists.

BARBER'S PHOSPHOR PASTE.

Now manufactured of double strength, warranted to keep in any climate. Does not become dry or hard.

Guaranteed the best destroying Paste in the world. No effluvia after death.

3*d*., 6*d*., 1*s*., 2*s*. 6*d*., and 5*s*. Jars. Also

BARBER'S VERMIN KILLER.

Kills Mice upon the spot; Rats die in their haunts. In packets, 3*d*., 6*d*. & 1/. The Proprietor begs to call attention of the Retail Trade to the reduced prices for cash to save travelling expenses.

3*d*. Phosphor Paste in	4 doz. boxes, at 6/.	3*d*. Vermin Killer at	1/6	per doz.
6*d*. ,,	2 ,, ,, 6/.	6*d*. ,,	3/	,,
1/ ,,	1 ,, ,, 6/.	1/ ,,	6/	,,

Carriage paid to London.

WORKS, SALISBURY. ESTABLISHED 1848.

Special Quotations to Shippers. Supplied by all the London Wholesale Houses

---

HORSES.—LIEUT. JAMES'S BLISTER.

LIEUT. JAMES'S
BLISTERING OINTMENT
R. S. James
I. James
Signatures of the Proprietors to counterfeit which is
FORGERY.

CAUTION.—The TRADE and PUBLIC, to ensure getting the ORIGINAL & ONLY GENUINE Blister, should be particular in seeing **the** names of the two Proprietors,

R. S. James
I. James

are on the round label on the top of every pot, as annexed; also, at the end of the long label (*directions for use*) encircling each pot, the name of the Inventor (signed thus)

Robt. James

The Messrs. Barclay & Sons, 95 Farringdon Street, London, and Messrs. Raimes & Co., Edinburgh, are now and have been Agents 39 years. The Ointment may also be had of Messrs. Sutton & Co., 10 Bow Churchyard, Cheapside; W. Edwards, 38 Old Change, Cheapside; Newbery & Son, 37 Newgate Street; Sanger & Son, 150 Oxford Street; W. Mather, London and Manchester; Millard & Co., 44 Barbican; Messrs Boileau & Co., Bride Street, Dublin; Messrs. McMaster, Hodgson, & Co., Capel Street, Dublin, and Cork; and all Chemists.

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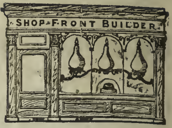

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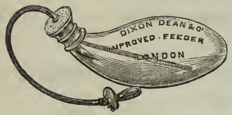

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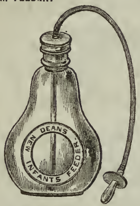

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All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

Subscribers are requested to observe that the receipt of THE CHEMIST AND DRUGGIST in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further number will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order, without an exact system like this.

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THE MONTH

Our DIARY for 1876 is now nearly finished, and we must close for press on the 31st of this month. Any firm, therefore, wishing to employ this work as a medium for advertisements, and it is an excellent opportunity, should communicate with our Publisher at once.

The distribution of prizes to successful students at Bloomsbury Square occurred on the evening of the 6th inst. An unusually crowded meeting assembled, and the professors and prize winners were greeted with even more than the wonted display of enthusiasm. After the distribution an inaugural address to students was delivered by Mr. C. Ekin, of Bath. We print this on a subsequent page.

The Pharmaceutical Council met on the 6th inst. A letter was read from Mr. Thos. Hanbury, asking permission to reprint such of the late Mr. Daniel Hanbury's writings as were the copyright of the society. This permission was cordially granted. A short discussion occurred on a suggestion by Mr. Shaw that the society should discountenance the issue of canvassing cards on the part of candidates for Benevolent Fund annuities. It was not, however, thought desirable to interfere. The solicitor reported that he had taken proceedings in certain cases against persons who had infringed the Pharmacy Act. Thomas Bennett, 86 Fowler Street, Sheffield, had paid 5*l.* penalty and costs; Edwin Probett, St. Helen's Road, Swansea, had ceased trading as a chemist and druggist, and had paid costs; Arthur Mitchell Carr, Attercliffe, Sheffield, had been sued for two penalties, 5*l.* each, and judgment had been obtained. Other cases were also placed in the solicitor's hands. An important discussion arose in consequence of an application from the Leeds Chemists' Association for 25*l.* towards the expense of lectures, &c. Mr. Hampson pointed out as a general principle that the society had no control over the expenditure of the money so voted; and Mr. Sutton and Mr. Williams both seemed to consider that, if grants were to be given, they should be made rather to small places than to towns better able to take care of themselves, such as Leeds or Manchester. But the rest of the council seemed unanimously of opinion that such an application as this was perfectly in order, and that such grants were precisely what the council had previously resolved on making in order to aid provincial education. Mr. Bottle said he failed to see how the council could consistently subsidise education in London and refuse 25*l.* to Leeds. Mr. Sandford hoped there would be frequent applications of this kind. The grant was accorded unanimously. Mr. Schacht raised again his suggestion of the establishment at Bloomsbury Square of a model pharmaceutical laboratory, and asked what were the reasons which had decided the committee not to entertain the proposal at present. Mr. Robbins said it was thought such a course would compel the society to become manufacturers and vendors of preparations, which was not desirable. It would also, he said, be difficult to select always the best forms of apparatus. The President said the committee thought the present lecturers and laboratories provided the information sufficiently. Mr. Williams said there was not sufficient space for the proposed laboratory. Mr. Schacht said the committee did not seem very unanimous in their reasons. He presumed he had not explained his proposal with sufficient clearness. His desire was to provide gentlemen who wished to establish a laboratory for themselves with an opportunity of acquainting themselves with the requirements and best available means. The consideration of the subject was deferred.

The Metropolitan Hospital Sunday Fund has this year reached only 26,703*l.* 7*s.*, against 29,817*l.* 3*s.* 9*d.* last year.

The examiners elected by the Irish Pharmaceutical Council are Dr. E. W. Collins (Latin, English, and Arithmetic), Dr. W. G. Smith (Materia Medica and Botany), Mr. H. N. Draper, of the firm of Bewley & Draper (Pharmacy and General Chemistry), Mr. R. Montgomery, M.R.C.S. (Practical Pharmacy). The examiners will be paid 10*s.* 6*d.* per candidate, and candidates will have to pay a fee of three guineas, losing two guineas if they fail to pass. The decision of the question of one or two grades of pharmaceutists in Ireland is postponed to the meeting on November 3.

The public analyst for Edinburgh reports that during the past quarter one sample of vanilla, one of tapioca and one of water had been sent for analysis. No adulteration was found in the vanilla or tapioca, and the water was fairly good for domestic use.

We publish reports of several prosecutions instituted by the Inland Revenue Board referring to the sale of methylated spirit. A chemist at Dunbar was prosecuted last month for selling methylated spirit without a license. The manager of the business confessed that he had sold it to the exciseman, knowing who he was, but he had been deluded into the belief that it was only a friendly sale. A mitigated fine of 12*l.* 10*s.* was inflicted. Another chemist, Mr. Pelham C. Maitland, of Stonehouse, Devon, has been similarly fined for selling as "finish" a spirit containing less than the required proportion of gum. And, lastly, on Tuesday last two firms were fined in London for a precisely similar offence.

From a recently published memoir of Daniel Hanbury, written by his friend and co-worker, Professor Flückiger, we learn that the University of Munich in 1872 conferred upon him the honorary degree of Doctor of Medicine. Daniel Hanbury never used the title.

The obituary this month comprises the names of Mr. David Rennie Brown, of Edinburgh, senior partner in the firm of Messrs. J. F. Macfarlane & Co., the well-known manufacturers of opium alkaloids; also of Mr. George Treble, senior, the noted shop-fitter.

We print a condensed summary of Dr. Bayes' address as President of the Homœopathic Congress at Manchester. His remarks are worth studying, and show at least that homœopaths are not losing their confidence in their system, as some of the allopathic journals have recently insinuated.

We have received the rules of the North of Ireland Chemists' and Druggists' Association, which entered on its career on October 1, and is centralised at Belfast. The following are the first Board of Management, viz.:—President, Mr. William Dobbin; Vice-President, Mr. T. R. Walkington; Hon. Secretary, Mr. James H. Haslett; Treasurer, Mr. Thomas M'Mullan; Committee, Messrs. William Collins, William Eakin, William Cosgrove, Joseph Ainley, James Beatty, James Hillock, S. Clotworthy, Alex. Chapman, Samuel Gibson, C. F. Weir, David Galbraith, J. M'Adam, John S. Ward, John Acheson. Besides papers and discussions classes are contemplated. The annual fee for members is 10*s.*; for associates, 5*s.*; and for apprentices, 2*s.* 6*d.*

We have prepared a portrait and short sketch of Sir Dominic Corrigan, the first President of the Irish Pharmaceutical Society. We hope that, although it has not been thought fit to unite the pharmacists of our kingdom into one body, it will be found that this journal will fairly represent the best interests of pharmacy in both islands. Such, at least, is our desire and intention.

Readers who are at all nauseated with the abundant puffing which salicylic acid has enjoyed in chemical and medical papers of late will be refreshed by reading a spirited attack on its immense pretensions, which we quote from an American source, emanating from the fertile pen of Mr. R. Rother.

A number of accidental poisonings are reported this month. A child at Rotherham was poisoned by eating some broth containing arsenic. The history of that arsenic was curious. At the Rotherham Glass Works an arsenic tub was sold for 9*d.* to a man named Thomas Waller. He resold it to a family who wanted one for washing purposes. It had been washed out previously. Some clothes were washed in this tub one day, and were afterwards transferred to a boiler, and some of them to a tin saucepan. The saucepan was next day washed out and then used to make broth. Nine persons partook of the broth thus made. All were ill, and a child four years old died the same day. Mr. Baker, F.C.S., of Sheffield, analysed some of the remaining broth, and found it to contain a quantity of yellow sulphide of arsenic equivalent to 35 grains of white arsenic to the pint. The jury thought that arsenic-cask selling ought to be checked.

Another child at Liverpool was poisoned by arsenic taken in mistake for sugar.

An aged lady at Lichfield, Miss Charlotte Huntingdon, took a dose of an embrocation composed of laudanum and chloroform, which caused her death. The coroner's jury found that she had taken poison while in an unsound state of mind.

A man named William Harris, from Reading, arrived at the Barley Mow Inn, Guildford, and having retired to his room took four packets of Battle's Vermin Killer. He then cried out for a doctor. One came very soon, but could not save the man. Temporary insanity was assumed in this case.

A Dutch gentleman residing in Marylebone committed suicide by drinking the contents of two bottles of "neuraline," a patent compound of aconite and chloroform. Unsound mind was again alleged as the predisposing cause.

Fifty-eight boys in the Forest Gate Industrial School were poisoned by eating laburnum root, thinking it stick liquorice. All recovered.

A case is reported from Wrexham which demands very serious notice. Mrs. Martha Morgan Griffith, wife of a timber merchant of that town, had been confined, and was doing well. She suffered, however, from neuralgia, for which the doctor (Dr. Williams) sent her a lotion containing tincture of aconite and spirit of camphor. The liniment was in a small vial, bearing on it directions for use, but not even the word "poison" on it. Afterwards a purgative draught was sent from the same dispensary, and placed on the drawers by the side of the liniment. What followed is easy to imagine. The old nurse called up out of sleep in a half light, and she seventy years of age, administered to the patient the liniment in place of the draught. The poor lady soon became ill, and in a few hours died. Dr. Williams testified that he had given particular instructions to the deceased respecting this liniment. His dispenser gave evidence that in sending liniments of this sort to respectable persons they did not usually attach a poison label. The coroner and the jury thought it would be desirable to indicate by such a means the character of those deadly compounds, but both were careful to assure the doctor that they did not cast the slightest reflection on him. The doctor himself was gracious enough to express his agreement with the opinion of the coroner and jury.

A different tone of reproof was adopted by a coroner at Barnsley, in a case where a chemist was concerned. The latter, Mr. Eastwood, had sold a bottle of Harrop's soothing syrup, manufactured at Oldham, and a child, aged eight weeks, to whom an immense overdose had been administered, had subsequently died. Dr. Morris, who had attended the child, said the soothing syrup was paregoric. In the course of an animated discussion between the coroner and the druggist, the former said that the book recommending the medicine, and the medicine itself, were both barbarous and dangerous, and he told the witness that if he sold any more of that soothing syrup he would be liable to a charge of murder; and if the case should come before him, he would take care that he (the anticipated prisoner) should not be liberated on bail. The inquiry was adjourned, and when renewed Mr. Harrop attended. He asserted that his syrup contained a narcotic, but that there was neither paregoric nor opium in it. He said that 250,000 bottles of the medicine had been sold. The case was again adjourned in order to get an independent analysis.

Mr. James Kerr, a chemist and druggist, at Greenock, was charged under the Adulteration Act, on the 21st ult., with the sale of citrate of magnesia alleged to be adulterated. The case was adjourned, and we have since heard no more of it.

The area of space allotted to various nations in the Philadelphia Centennial Exhibition up to this date are:—United States, 166,351·7 square feet; France and colonies, 43,314; England, 51,776; Germany, 27,705; Austria, 24,070; Canada, 24,070; Australasia, 24,070; Sweden, 15,358; Belgium, 15,358; Japan, 16,566; Netherlands, 8,167; Norway, 6,897; Switzerland, 6,646; and Denmark, 5,647.

Mr. A. H. Mason has been re-elected President of the Liverpool Chemists' Association.

The interment of Mr. Geo. Treble, senior (whose death is recorded in our obituary this month), took place at Abney Park Cemetery last Saturday, the 9th inst. The funeral *cortége* was met at the gates by all the employés of the firm, who accompanied it to the chapel and the grave.

The Glasgow Chemists' and Druggists' Association was opened on the 13th inst. by an inaugural address from the President, followed by a paper on "The Growth of Plants," by W. Emmerson Maciver, Esq., F.C.S. This association will start a chemical class under Dr. A. T. Machattie, F.C.S., if enough students can be enrolled at one guinea for six months, one lecture weekly.

THE SALE OF FOOD AND DRUGS ACT.

INSTRUCTIONS FOR THE GUIDANCE OF RETAIL TRADERS.[*]

[The term "Food" includes every article of food or drink, excepting drugs and water. The term "Drugs" includes medicine for internal or external use.]

ON and after October 1, 1875, no trader can be convicted (under the 3rd, 4th, and 5th sections) of selling an adulterated article if he can show, to the satisfaction of the Justice or Court, that he could not, with reasonable diligence, have ascertained that the article sold by him was mixed, coloured, stained, or powdered, so as to render the article injurious to health, nor (under the 6th section) if he can also show that it is a recognised article of commerce, or a proprietary medicine, or a compounded drug, or that the extraneous matter was unavoidably due to the process of collection or preparation.—Secs. 5 and 8.

A verbal declaration is not now required, but retail traders must, upon delivery to the purchaser, affix, or see that in the case of all mixed articles there is a legibly or distinctly written or printed label on the packet, parcel, or vessel, to the effect that the article is "mixed."—Sec. 8.

To abstract from an article any part thereof so as to affect injuriously its quality, without notice to the purchaser, will render the vendor liable to a heavy penalty.—Sec. 9.

Retail traders are advised to obtain a written warranty in every case where it is possible.—Secs. 24 and 25.

The purchase of articles for analysis is not limited to officers appointed for the execution of the Act, but it appears that no penalty would be incurred by refusing to sell for that purpose to a private individual.—Secs. 12 and 17.

After the completion of the purchase of an article for analysis, the purchaser must forthwith notify his intention to the seller or his agent.—Sec. 14.

The trader must, upon the tender of the price of any article exposed for sale by an officer, inspector, or constable charged with the execution of this Act, sell him the same under a penalty not exceeding 10*l.*—Sec. 17.

Precautions to be Observed at the Time of Sale.

Firstly,—The purchaser, for the intention of analysis, must then and there offer to divide the article in the presence of the seller or his agent into *three* parts.—Sec. 14.

Secondly,—If required to do so, the purchaser must then and there mark, seal, and fasten up each part, according to the nature of the article, and deliver one part to the seller or his agent.—Sec. 14.

Note.—Insist upon the article left in your possession being then and there sealed with the inspector's seal, and put the article under lock and key, in the event of it being required for future comparison or analysis.

A notice should be given, by the first post after an article has been sold for analysis, to any prior dealer or wholesale house whom it is intended to hold responsible for the result, without waiting for the issue.

In the Event of the Trader being Summoned.

1. The certificate of the analyst is sufficient evidence with the production of the part of the article retained by the purchaser.—Sec. 21.

2. The certificate of the analyst must be in the form of the schedule (see end of this paper), or to the like effect.—Sec. 18.

3. The defendant can require the analyst to be called as a witness by giving due notice to the prosecutor immediately on receipt of the summons, and can also tender himself and his wife to be examined on his behalf. N.B. The defendant should always be prepared to do this.—Secs. 21, 24, and 25.

4. If the defendant be not satisfied with the certificate of the analyst, he can request the Justice or Court of Appeal to submit the sample in his or the purchaser's possession to be examined by the Government analytical officers at Somerset House. N.B. In case of a refusal by the Justice or Court of Appeal the defendant can give notice of procedure by mandamus in the Court of Queen's Bench.—Sec. 22.

5. The defendant cannot claim to be discharged from his summons unless he shall have given due notice to the prosecutor that he will rely on the defence described in the 25th Section (see below).—Secs. 24 and 25.

With Regard to Appeal and Defence.

The defendant has the right of appeal, but must give notice accordingly, and may recover penalties and costs in addition to any other damages, if he be able to prove (Secs. 23 and 28)—

Firstly,—That he sold the article in the same state that he received it, and had no reason to believe it to be otherwise.—Secs. 25 and 28.

Secondly,—That he can produce a written warranty.—Sec. 25.

Thirdly,—That he could not, with reasonable diligence, have ascertained that the article was mixed, coloured, stained, or powdered, so as to be injurious to health.—Secs. 5 and 25.

Fourthly,—And that the conviction was wrongful and the claim not unreasonable.—Sec. 28.—(A direct appeal to the Court of Queen's Bench is advised in preference to the Quarter Sessions.)

On and after January 1, 1876, all imported tea will be examined by the Customs.—Sec. 30.

The Adulteration Acts are repealed.—Sec. 1.

Special arrangements have been made for sending samples for analysis through the post office.—Sec. 16.

Form of Certificate.

To[*]............................

I, the undersigned, public analyst for the .... do hereby certify that I received on the .... day of .... 18..., from[†] .... a sample of.. for analysis (which then weighed[‡]..................), and have analysed the same, and declare the result of my analysis to be as follows:—

I am of opinion that the same is a sample of genuine ....

or,

I am of opinion that the said sample contained the parts as under............................

Observations[§]..

As witness my hand this .... day of ....

at ....

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[*] Here insert the name of the person submitting the article for analysis.

[†] Here insert the name of the person delivering the sample.

[‡] When the article cannot be conveniently weighed, this passage may be erased, or the blank may be left unfilled.

[§] Here the analyst may insert at his discretion his opinion as to whether the mixture (if any) was for the purpose of rendering the article portable or palatable, or of preserving it, or of improving the appearance, or was unavoidable, and may state whether in excess of what is ordinary, or otherwise, and whether the ingredients or materials mixed are or are not injurious to health.

In the case of a certificate regarding milk, butter, or any article liable to decomposition, the analyst shall specially report whether any change had taken place in the constitution of the article that would interfere with the analysis.

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[*] These instructions have been drawn up by Mr. F. Morrison, Secretary of the National Chamber of Trade, in conjunction with Mr. R. M. Holborn, of Mincing Lane. Both of these gentlemen have closely watched the development of the present Act, and their "instructions" cannot fail to prove valuable.

SIR DOMINIC JOHN CORRIGAN, BART., M.D.,

President of the Irish Pharmaceutical Society.

THERE is something peculiarly refreshing in the atmosphere of Irish politics, to whatever section of society they may refer. In some instances, indeed, "refreshing" may be almost too colourless an adjective to employ; but in the case of pharmacy it answers perfectly.

A new pharmacy law has been established in Ireland with quite unexampled ease and rapidity: its original advocates could never have anticipated such an early and complete victory. But certain stars in their courses fought on the side of the druggists; and the gentleman who had the control of these stars was the famous medical baronet whose portrait occupies the opposite page.

After an already long career of far more than average activity, Sir Dominic Corrigan observed in pharmacy a year or two ago a new vent for some of his superfluous energies. We may be in error, and we certainly have no formal evidence in support of our theory, but at the same time we have little hesitation in crediting Sir Dominic Corrigan with the real authorship of the movement made by the College of Physicians of Ireland when the druggists were commencing their gallant but almost hopeless struggle against the old-established vested interest which the Apothecaries' Company held in Irish pharmacy. How long the druggists might have agitated if left to themselves, and dependent only on the justice of their claims, let those say who have been engaged in any such uphill battle with no other aid. But the arrival of the physicians on the field changed the aspect of affairs suddenly. The apothecaries were dismayed, and offered terms to the druggists—terms which would have been accepted if the apothecaries had behaved with ordinary good faith. The parliamentary struggle was short and decisive. It evidences beyond doubt a careful and skilful preparation of forces and arrangement of difficulties before the introduction of the Irish Pharmacy Bill to the light of day. The Apothecaries' Company was pushed aside with one hand, the British Pharmaceutical Society with the other, and the revolution was accomplished. Its product was the Pharmaceutical Society of Ireland, with Sir Dominic Corrigan at its head.

Putting aside a somewhat natural prejudice which we share with English pharmaceutists generally against the direction of our affairs by medical men, we can but admit the favourable prospects of pharmacy in Ireland under the guidance of such a man as Sir Dominic Corrigan. He has no personal interests to serve, and we fully believe that his aim will be to establish the profession in Ireland firmly and honourably. We have the utmost confidence in his ability, and if he can curb a somewhat despotic tendency we think the Irish Pharmaceutical Society may develop into a noble monument of his untiring zeal.

Sir Dominic Corrigan was born in Dublin in 1802, was educated at the Lay College, Maynooth, and afterwards studied professionally at Edinburgh, where he took the degree of M.D. in 1825. The University of Dublin conferred a similar degree on him in 1849. In his earlier years he held the Chair of Medicine in the Carmichael School of Medicine. This post, however, he resigned in consequence of the growing demands of his private practice. He was chosen President of the King's and Queen's College of Physicians for five years in succession, and after an energetic career, in the course of which he had rendered great and gratuitous services to the cause of health and education in his native country, he was made a baronet in February, 1866. He contested Dublin city as a parliamentary representative in 1868, but was defeated. He was, however, elected on the next occasion, August, 1870, and sat on the Liberal side of the House, until the last general election, when the party which had been chiefly instrumental in putting him in Parliament—the "spirit grocers," the drink interest, in fact—discarded him, Sir Dominic having given offence by the advocacy of Sunday closing and by sundry coquetting with the Permissive Bill faction. Both in the House of Commons and in the Medical Council (where he has long represented the Queen's University of Ireland), he has been noted as a racy and forcible speaker, a formidable opponent and an unflinching advocate. Amid his manifold occupations, both public and private, he has found time to contribute a good many papers of medical interest to various journals, chiefly to the *Edinburgh Medical Journal*, and he is also the author of an entertaining volume entitled "Ten Days in Athens."

ADDRESS TO PHARMACEUTICAL STUDENTS.

[Delivered at the School of Pharmacy, Bloomsbury Square on October 6, by Mr. C. Ekin, Bath.]

STUDENTS of Pharmacy,—Comparatively speaking, so recently is it that I was myself studying in order to pass my examinations, that my being honoured at this time with the invitation of the Council of the Pharmaceutical Society to say a few words of encouragement to you at the opening of this session of the society's school, gives me the advantage of addressing you whilst my student's memories and sympathies are still fresh upon me, and it is therefore as from one of yourselves that I ask you to receive and listen to what I may have to say to you this evening.

You have come here with the intention of spending some months in study, the better to fit yourselves for the business of your choice, and to enable you to pass the examinations which have been prescribed by the Government of the land as affording some guarantee of your fitness for the discharge of the responsible and somewhat onerous duties of a pharmacist; and it may not be out of place if, at the outset of my remarks, we endeavour to obtain a clear picture in our minds of what this business of ours really is, that we may be the better able to consider the best means of meeting and providing for its requirements.

I dare say most of us remember pretty vividly our impressions on entering upon our first term of pupilage or apprenticeship. We had perhaps thought little about what we had to expect, and as is so often the case, had drifted into, rather than deliberately chosen, the business we are engaged in.

We may have been partly influenced, some I know are so influenced, by learning that we should have examinations to pass, and a course of study to go through, which created in the minds of our guardians or parents, and in our own minds, a vague, ill-defined impression that our business was thereby invested with a semi-professional character, and that our status in society was by so much raised beyond that of a mere tradesman.

These impressions perhaps were somewhat rudely shaken during the period of apprenticeship, when we were brought face to face with the drudgery and petty details inseparable from ours as from most other callings, but they are likely to be renewed and strengthened during your students' life here, and it is for this reason that I allude to them now. Nothing can be more delightful than the life of a student. Many who have given hostages to fortune envy you, and would gladly share with you the advantages you are about to enjoy for the next few months. But with these advantages you have special temptations, and the one temptation to which I refer at present may be actually engendered by the very zeal with which you throw yourselves into your work. For a time you will be living in a very different world from that you have been accustomed to, and the tasting the sweets of acquiring knowledge may very naturally for a brief moment on your return to practical business life cause you to feel a distaste for it. I say for a brief moment only, for I have faith in your common sense, but it is because I have seen many instances where this distaste, becoming permanent, has unfitted men for business that I raise a note of warning now. Of course there have been students here of

THE CHEMIST AND DRUGGIST PORTRAIT GALLERY.

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Yours ty

D J Corrigan

SIR DOMINIC JOHN CORRIGAN, BART., M.D.

PRESIDENT OF THE IRISH PHARMACEUTICAL SOCIETY.

ability, who have left the ranks of pharmacists to follow out some special line of study. I need hardly say that I allude to none of these. Much as we may regret their leaving us, pharmacy is content to be used even as a mere stepping-stone to their advancement. I allude rather to those students who, owing to deficient education and sickly views of life, become what is called "above their business," and who, by their foolish pretensions and incompetence in practical details, bring discredit on the class to which they belong.

I think if you have not already made up your minds, a little thought and consideration will convince you that pharmacy is essentially a trade, not only in the mixed businesses which form the large majority, but even in the comparatively few devoted to what may be called pure pharmacy. But surely our position as tradesmen in general, and pharmacists in particular, is too honourable that we can afford to allow ourselves to be jostled in the crowd of would-be professionals. If our calling is a useful one, affording ample scope for the exercise of our mental faculties, we shall best consult our own dignity by making a firm stand for our real position, and respect ourselves first in order that we may gain the respect of others. Respect ourselves—not by aping and pretending to be what we are not, but by proving in our lives and in our persons that in this respect professions own no monopoly, and that it is quite possible to be an educated man and a gentleman and yet engage in trade pursuits.

And if ours, then, is a trade, it follows that the first requisite for a pharmacist, above all others, is business habits. It is of small moment if our grocer sends us soap for cheese, or our bookseller Tupper for Browning; but even the slightest mistake is of consequence to us, where carelessness and inattention may be fraught with the most serious consequences, and the slightest mistake must always tend to deprive us of the confidence of the public.

The scientific knowledge of our business, when it is coupled with sound practical business habits, renders the services of its possessor eagerly sought for, whether as an assistant, or in due time by the public as a principal. But if one has to chose on the one hand between the man who has a thorough knowledge of the practical details of his business without any special scientific knowledge, and on the other hand the Major Associate, in honours it may be, without such practical knowledge, there can be no question that the former will be pronounced as the man who best fulfils his duties as a pharmacist.

You may say that this is too obvious even to be mentioned, much less insisted on, but I am persuaded that the matter at this stage in the career of the Pharmaceutical Society is worthy of your most careful and earnest consideration, and that any conclusions you come to respecting it will largely affect your future happiness and usefulness.

Judging from letters that appear from time to time in the *Pharmaceutical Journal*, and from what one hears and sees every day, it would seem that there are many young men in our ranks, I am far from saying a majority, but a sufficiently formidable minority to form the leaven that may rapidly leaven the whole lump, who are altogether sailing on a wrong tack, and who have formed an exaggerated and disproportionate estimate of their own position and consequence. Instead of presuming to dictate to and almost patronise the older members of our body, to whom let us remember we owe all the advantages we now enjoy, and which were fought for and won, not so much for themselves as for posterity, I think it would become us better to set ourselves to imitate their sterling business qualities, which have gone far to account for the present advancement of pharmacy, and to make possible a better future for us. To be candid, I think there never was a time when we had less cause for overweening self-confidence than the present. As a proof of this, to say nothing of those household and respected names of men who though happily still with us belong rather to the last generation than to ours, we have but to compare ourselves with the men who were students here some thirty years ago, at the first opening of this society's school, and to ask ourselves, but to ask I fear in vain, where are the men of this our day who will take the same place as they have done?

Let us consider, too, the general education of those of us now entering the trade as tested by the Preliminary examination. The examination, putting aside the small modicum of Latin required, is in no whit more difficult than the sixth standard of the New Code, which standard boys can pass at the age of fourteen in our elementary schools, and yet we find that half the number of those presenting themselves for examination fail to succeed.

It is just this low standard of education which I believe is at the root of nearly all the misapprehension I have been alluding to.

The examinations, seen through the refracting medium of the mists engendered by deficient education, assume gigantic and distorted proportions, looming through the distance as lofty and inaccessible mountains, but when approached by the well-grounded pupil, marching with steady and even steps, they are found to be, if not veritable molehills, at any rate hills of but gentle ascent. It is an undoubted fact that the men who have had the best general education are the best able to devote themselves successfully to special studies, and it is much to be hoped that out of considerations of pure mercy to the youths now entering the business, the council of this society will soon see their way clear for making the Preliminary that which it certainly is not now, a really test examination of a fair general education.

When that day comes we shall hear no more about the difficulty of passing the examinations, but until then, even if with some degree of shame we take a lower place in our own estimation, it will have the healthy effect of causing us by renewed exertion to raise ourselves to a more perfect and just view of our merits and true position. We shall not then complain that we are not appreciated because we know so much, but we shall learn that in those cases where these plaints are heard it is just because young men are in ignorance of how little it is they know that they give themselves such airs. I know it to be the opinion of many people that the requirements of the examinations cause young men to be educated above their business, and that after their course of studies here or elsewhere they never settle down again comfortably to the inevitable routine of a pharmacist's life. At first sight there may be some show of reason in this idea, but if we really go into the matter we shall find, I am convinced, that it is really want of education, not too much education, that is the cause of the evil. The examinations have been gradually increased in stringency up to their present standard, and if the Preliminary had been gradually increased too, to keep pace with the requirements of the Minor and Major examinations, the result would have been that boys entering the trade would be kept, if necessary, longer at school, and thus rendered better fitted to enter upon their special studies. My own experience, which so far as I can gather is a very general one, goes to show that almost invariably the most capable pharmacists, whether as assistants or principals, and by capable I mean the careful, accurate, painstaking men of business, are just those who have received the best education, an education not necessarily acquired at school, but often in spite of many disadvantages, such as leaving school early—acquired by diligent self-culture in after life.

Not to dwell longer on these general considerations, I have already referred to the advantages you are about to enjoy here, and I would earnestly impress upon you that any neglect of them will cause you to look back in after life with much regret on your wasted opportunities. This emphatically is your golden opportunity, and your use or abuse of it will colour and determine more or less your whole future.

This should be especially for you a time of self-denial. In this large city you are surrounded with numberless temptations to take you from study, many of them at another time innocent and legitimate enough in themselves, but now to be avoided and fled from as you value your welfare and realise the duty you owe to yourselves and those who sent you here. What I would ask you first to try to cultivate at this time, at a period of life when habits are most easily established, are habits of study. Many of you who have perhaps a natural disinclination for study will be surprised to find how easily this may be overcome by determined resistance. As Butler says in his "Analogy," "By accustoming ourselves to any course of action, we get an aptness to go on, a facility, readiness and often pleasure in it. The inclinations which rendered us adverse to it grow weaker; the difficulties in it, not only the imaginary but the real ones, lessen; the reasons for it offer themselves of course to our thoughts upon all occasions, and the least glimpse of them is sufficient to make us go on in a course of action to which we have been accustomed. And practical principles appear to grow stronger, absolutely in themselves, by exercise, as well as relatively with regard to contrary principles, which, by being accustomed to submit, do so habitually and of course. And thus a new character, in several respects, may be formed; and many habitudes of life, not given by nature, but which nature directs us to acquire."

As for your success here much will depend upon the way you look at your examinations, whether you regard them as mere signposts by the way or as your ultimate goal. Nothing can be more fatal than the latter view. To strain every nerve, simply to pass, only to leave yourselves exhausted and unfit for further exertion! To gorge the mind, regardless of the fact that the mind surfeited with an ill-digested load of material, which it makes all haste to free itself from, conceives, it may be, for ever after an absolute distaste for wholesome nourishment! These be the reasons of the dyspeptic wails that from time to time find utterance in the correspondence columns of the Journal. The man who by dint of cram lands himself by one supreme effort on the other side of the "Major" finds to his dismay that the mere qualification and title which he set such store by avail him nothing, and that the habits and love of study, which he might have but has not acquired, would have set him on his way in life with every certainty of success. As with the body so with the mind, it is the moderate and daily portion of food, well assimilated, that stands us in good stead. It is of prime importance that you should think before you read, or at least whilst you are reading, and only so will you be able to grasp your subject. "Read, not to believe and take for granted, but to weigh and consider." Bacon tells us, "Studies serve for delight, for ornament, and for ability," and much as "ability and judgment in the disposition of business" concern us, I verily believe that it is in the "delight" chiefly we reap our abundant reward.

It is at once, perhaps, an advantage and a disadvantage that whereas other tradesmen have to find their pleasure out of business, the hard-worked pharmacist who may be said to be always, more or less, at work during the seven days of the week, is able to find, and if he be wise will find, much of whatever amount of pleasure falls to his lot in life during the hours he spends in his business. The better the chemist, botanist, and physicist he is, the more intelligently will he carry out the thousand and one little processes in which he is daily engaged, redeeming his work from the position of drudgery and investing it with the halo of interest which always attaches itself to the practical applications of science, even to its most remote ramifications. And if to maintain vigorous health and its accompanying high spirits, which are larger elements of happiness than any other things whatever, the pharmacist passes a large proportion of his hardly-earned hours of leisure in the open air, here, too, the special training of his calling follows him and transforms the monotony of mere constitutional walks into pleasurable excursions. Who can sum up the pleasures of exploring the flora of the district in which one lives and the delight which every discovery of a fresh plant always brings? To quote Bacon once more, he has pronounced a garden to be "the purest of human pleasures, the greatest refreshment of the spirits of man." And if this be true of the gardens which man plants, which are set out and arranged according to conventional rules, and often so artificially conceived as to lie open to the faults of stiffness and formality, how much truer must it be of the gardens of nature's planting, where the wild luxuriance of colour and the unrestrained freedom of growth, whether in the bright meadows, tangled bank, or dense wood, give a combination of charms nowhere to be found or enjoyed except amid rural scenery!

Nor in your study of botany are you confined to the flora of your own country. There is rarely in these days a large town to be met with that has not its arboretum, and the smallest country town must be very exceptionally situated if there is not a gentleman's seat near or gardens where one may find scattered here and there some of the acclimatised trees and shrubs of other countries. You will read with much more interest and profit books of travel if you are able from your own knowledge of some of the forms of vegetation named in them to realise and picture to yourselves foreign floras. And knowledge of this sort is of no little practical use, as it enables you to advise as to the judicious planting of our towns and neighbourhoods, where, notwithstanding so much has been done and is being done in this direction, so much still remains to be learnt.

You cannot occupy a half holiday, during your stay in London, to a better purpose than by an occasional visit to Kew. In spite of the vivid and faithful descriptions by such naturalists as Bates and Wallace, the most fertile imagination fails to arrive at anything like a satisfactory conception of tropical scenery, and the delightful impressions in seeing for the first time in the palm house at Kew such trees we have so often read about, as the banana, screw pine, banyan, date palm, cocoanut palm, and mangrove, are never to be forgotten.

But for hardier trees and shrubs, your own neighbourhood will amply furnish you with sufficient examples. To mention only a few of the many which I find from personal observation to be everywhere common, we may start from Canada, which gives us so many of our coniferæ, with the hemlock spruce (*Abies Canadensis*), which, from its abundance and beauty, is frequently referred to by the American poets under the name of hemlock.

To the United States we owe perhaps more than to any other part of the world, with the single exception of Japan, trees of great diversity and surpassing beauty. The oaks and maples, the buckeyes (*Pavias*), the locust trees (*Robinias*), erroneously called acacias in England, the *Catalpa syringæfolia*, the noble *Liriodendron tulipifera*, the tulip tree, the *Aralia spinosa* with its large bipinnate leaves and handsome spikes of flowers, the *Juglans nigra*, and various species of *Carya*, yielding the hickory nuts and butter nuts, &c., the mere mention of which recalls to us our early school-boy days, when we pored over "Queechy" and the "Wide Wide World;" the *Taxodium distichum*, the deciduous cypress, the prevalent tree in the swamps of the Southern United States and Mexico, the hiding place formerly of many a hunted slave, and interesting not only from its beautiful feathery foliage, but as being, in common with the *Sequoia sempervirens*, closely allied to fossil tertiary species which countless ages ago were spread over Europe, where no congeners are now indigenous. To California, besides for some of our most valuable pines, such as *P. Sabiana* and *P. insignis*, we are indebted for the majestic but somewhat formal *Sequoia gigantea*, the mammoth tree of the Americans, and the Wellingtonia of our gardens, and for the equally majestic *Sequoia sempervirens*, the redwood of the timber trade.

South America gives us the *Araucaria imbricata*, and one or two species of *Libocedrus* from Chili: the *Araucaria Brasiliensis*, forming large forests in south tropical Brazil, and which is hardy in the warmer parts of England, and last, but not least, the beautiful *Berberis Darwinii*, now to be found in every garden, and discovered by Darwin during the famous voyage of the *Beagle* on the coasts bordering on the Straits of Magellan.

Leaving Europe, notwithstanding our considerable indebtedness to it, and hastening on as I must, just noticing the cedar of Lebanon, the horse chestnut of Asia, the *Cedrus Deodara*, *Abies khutrow*, and *Pinus excelsa* of the Himalayas, all coniferæ of rare beauty, and leaving the *Caraganas* and *Spiræas* of Siberia on the North, we come through China, with its *Photinias* and thorny *Gleditschias*, to Japan. Owing to the general similarity of the climate of Japan to our own, we owe to it many of our most valuable introduced hardy shrubs and trees, without which our gardens and pleasure grounds would be shorn of half their beauty. In every cottage garden are to be found the evergreen Japan euonymus, privets and honeysuckles, whilst even in the areas of our houses, in crowded streets, the aucuba will flourish. Amongst the most striking of the Japan coniferæ are the *Cryptomeria Japonica*, the Japanese cedar, which forms a large proportion of the vast forests which clothe the slopes of the mountains there, *Thujopsis dolobrata* and *Retinisporas* of endless variety and beauty.

Then there are the charming miniature maples. The paper mulberry (*Broussonetia papyrifera*), from the bark of which the tapa cloth of Polynesia is fabricated; the singular maidenhair tree or ginko (*Salisburia adiantifolia*) with its fern-like leaves; the *Paulownia imperialis*, with its immense leaves and purple flowers; and the two noble trees *Sophora Japonica* and *Ailanthus glandulosa*, which latter now being generally planted on account of the great beauty of its glossy dark green foliage, and of which we have already in England some fine specimens, acquires additional interest from its being the food of the silk-producing insect (*Bombyx cynthia*), lately introduced into South Europe.

Not to weary you with a further list of names which must necessarily be uninteresting and uninviting, I hope I may have said enough to induce you to enlarge your botanical boundaries and search out for yourselves the treasures from other lands that are to be found at your doors, promising you that however dry it may be and is to read mere descriptions, the actual study of the trees themselves is full of interest.

What funds of interest, too, are to be found in what may be called the byepaths of botany, in examining into the history, etymology, and poetry of the common English names of plants.

I am tempted to give just one or two illustrations, for which

I am indebted to the writings of Mr. Ellacombe, and to pick at hazard one of the commonest, and at the same time one of the prettiest flowers that grow, the daisy, the favourite flower of Chaucer, who thus gives the likeliest derivation of its name :—

> The daisie, or else the eye of the day,
> The emprise, and the flour of flours all.

Some of you may be surprised to hear that the forget-me-not, at the beginning of this century, was known only by its old English name of mouse-ear, which is the exact translation of the pretty Greek name *μύοσωτις*, dating from the time of Dioscorides, 1,800 years ago, and which the plant still bears as its generic name. It was not until the pretty German legend of the forget-me-not, which you all know so well, became popular in England some fifty years ago, that it bore its present name. Before that time the name was applied for very different and less romantic reasons to the ground pine (*Ajuga chamæpitys*) on account of its unpleasant and long-enduring taste. You may remember a similar idea in Shakespeare, where he makes Ophelia say :—

> There's rosemary ; that's for remembrance.
> I pray you, love, remember,

Rosemary being emblematic of remembrance on account of its enduring taste and smell.

How the mere mention of culverkeys and lady-smocks recalls to us the delicious word painting of Walton ! And how eglantine and a host of other names bring back to us some of the choicest passages in the old poets ! But I must not linger too long by the way ; sufficient is it to say that there is hardly an English name of a plant that will not give you some instruction or suggest some pleasing history.

From botany the transition is easy to geology. You will have noticed in your country rambles that where there is the greatest variety of soils there will be found the greatest variety of plants, and that some plants are peculiar to certain formations. We have a curious instance of this near Bath. The foxglove (the glove of the folks, or fairies) is absent from all the oolitic and liassic strata of the neighbourhood, and is only to be found in the district on a small area of about a mile in circumference, caused by an outcrop of carboniferous limestone, and the plant, tolerably abundant within the charmed circle, is never found out of it.

You will be frequently consulted, if you render yourselves competent to advise, on matters connected with the water supply of your district, on the composition of soils in connection with agriculture, and on various other questions, where you will find a knowledge of geology of paramount importance ; but here, again, it is not so much the practical use of the study of this science that I would insist on as the delight it is capable of affording you.

There is many a country town where the young pharmacist just settled in business is often tempted to ask, of what use was the examination ordeal to him. He rarely sees a prescription, and he may think that the occasions when he is called upon to exercise any special knowledge are few and far between. With the utmost sympathy for his position I have tried, however imperfectly, to point out to him where his true solace lies, whilst he is wearily waiting for the time, surely though slowly coming, when the better educated medical men of the present day will become alive to the fact that there is ample scope for all their ability and energy in the legitimate exercise of their profession, without undertaking duties that properly belong to us. In the meantime he will find his happiness in pursuing the studies the foundations of which he laid whilst preparing for his examinations.

There is an ample field before him. You have only to turn to the interesting paper by Baron von Mueller, which was copied in the *Pharmaceutical Journal* for last June, to see what services pharmacists have rendered as scientific investigators. Since then, too, we have had still further evidence, if further evidence were needed.

At a lecture on a piece of limestone by Dr. Carpenter at the meeting of the British Association held the other day in Bristol allusion was made by the lecturer in connection with his subject to the labours of two men, in these words : "The admirable researches of Mr. H. B. Brady have recently brought to light a vast forameniferal fauna in our own limestones." And again, "the careful study which Mr. Stoddart has made of a particular bed of a Clifton limestone has shown it to be full of minute forms of animal life, notably fragments of polyzoa."

It is unnecessary for me to tell you that the men thus honourably mentioned are pharmacists—men who, thorough and successful in business, so far from having neglected their mistress pharmacy, have been chosen rather as eminent in their devotion to her to fill the office of Presidents of the Pharmaceutical Conference, and yet who have been able to carry their researches so successfully into sciences not immediately connected with their calling.

For the many, however, it is not given to attain such excellence, and I would rather set before you a less ambitious standard to which all here, if so minded, may attain.

Besides the more immediate and manifest duties of the pharmacist, viz., the dispensing of medicines and the retailing of drugs, duties the proper discharge of which involves a special scientific training, he may be said to have an extra mission, which is to diffuse and distribute to the people a knowledge of science in its practical applications.

Lytton says in one of his later novels something to the effect that if in a strange place he wanted information on any point he invariably applied to the pharmacist as the best informed member of the community. It may be perhaps well for us not to pause to inquire too nicely how far this remark was suggested by an experience of foreign pharmacy, but even if we do not arrogate to ourselves such a position, we, believing with George Herbert that

> Who aimeth at the sky
> Shoots higher much than he that means a tree.

may fairly aim to attain it.

Whilst we must seek to avoid the Scylla of too great an absorption in the pursuit of any one science to the neglect of our business, we have, on the other hand, even more strenuously to avoid being sucked into the Charybdis of superficiality, the bane of attempting too comprehensive a scheme of study, preferring rather to do a little thoroughly than to attempt too much.

I have sought to point out to you some of the pitfalls that beset your path ; to warn you that if you intend to be a successful pharmacist you must determine that your education, so far from being necessarily finished when you have passed your examinations, is then but barely begun ; to portray for you the position you may and ought to take ; to show you that your calling, if rightly followed, in spite of its many disadvantages (and what calling is free from drawbacks ?), is capable of affording you much of the higher and more worthy of life's enjoyments, and I cannot more fitly close my remarks than by putting before you in the eloquent words of Professor Huxley the sort of education we, both as citizens and pharmacists, ought to seek after.

"Education," says he, "is the instruction of the intellect in the laws of nature, under which name I include not merely things and their forces, but men and their ways." "That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will and does with ease and pleasure all the work that, as a mechanism, it is capable of ; whose intellect is a cold, clear logic engine, with all its parts of equal strength and in smooth working order ; ready, like a steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind ; whose mind is stored with a knowledge of the great and fundamental truths of nature and of the laws of her operations ; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience ; who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to respect others as himself."

AMERICAN PHARMACEUTICAL ASSOCIATION.

Specially reported for this Journal.

The twenty-third annual meeting of this association was called to order by its President, Professor C. Lewis Diehl, at Odd Fellows' Hall, Boston, on Tuesday September 7, at 3.30 P.M. The assemblage at the opening of the session was very large, and the attendance at all the sittings of the body exceeded that of any meetings in previous years.

After the appointment of a committee on credentials, President Diehl read his address. After alluding to the work before the meeting, he gave a detailed account of some of the recently introduced chemicals and remedials, dwelling mainly on salicylic acid, digitalin and jaborandi, their history, uses, and effects. The closing portion of the address contained some recommendations relating to the duties of some of the officers and committees of the association.

The committee on credentials reported the attendance of delegates from eleven colleges of pharmacy, seven alumni associations, and eleven local pharmaceutical associations.

The executive committee read the names of 103 persons who were afterwards elected to membership, and at subsequent sessions others were elected, making 139 in all, besides some twenty or more delegates who became members without election.

A committee of one from each organisation represented, and five members appointed by the President, were named to report at the next session their selection for officers for the following year.

Second Session.—After the opening business the committee on nominations for officers reported the following names:—

For President, Professor G. F. H. Markoe, Boston; Vice-Presidents, Fred. Hoffman, New York, T. Roberts Baker, Richmond, C. F. G. Meyer, St. Louis.

The other officers, and most of the members of the various committees were re-nominated. By ballot the name of Professor G. F. H. Markoe was declared elected as President, the other officers and committees being elected on one ballot.

The reports of the following committees and officers were read at this and subsequent sessions:—Executive committee, Permanent Secretary, Treasurer, on unofficial formulæ, on adulterations and sophistications, on legislation affecting pharmacy, on publishing papers in advance of the issuing of the proceedings of this association, on elixirs, on maximum doses of medicine, on progress of pharmacy, on photographic album, on the Ebert prize, on the President's address and reports of Secretary and Treasurer, on time and place of next meeting, on the Liebig memorial, and on exhibition of specimens.

The reading of these several reports occupied most of the remaining portion of the second and third sessions.

During the third session the reading of scientific papers began, the first one being "On the ready-made pills of our day," by Professor J. P. Remington. Professor Remington being prevented from attending the meeting, Mr. William Saunders read the paper.

The writer sought to investigate the solubility of the coatings given to this class of pills rather than to inquire into the character or quality of the pills themselves. The experiments tried were to determine the comparative readiness with which the coating became disintegrated and removed, as well as the apparent solvent action of the fluids upon the same pill mass. The experiments were tried at the temperature of 100° F., one sample of each kind of pill being treated in separate bottles with water, acidulated water, alkaline water and water containing some digestive principle. The pills *uncoated* were most soluble; next in solubility was the sugar-coated pill, then the compressed pill, and lastly, the gelatine-coated pill.

B. F. Stacey, of Charlestown, Mass., read a very interesting paper on the history, manufacture, and uses of paraffin, and its uses in pharmacy. The paper was replete with facts and statistics of interest on the subject.

Joseph L. Lemberger, of Lebanon, Pa., read a paper on the uses of some of the heavier petroleum oils in pharmacy, noticing the preparation of an almost odourless oil from the crude petroleum of certain localities, and recommending its use as a substitute for some other fatty bodies.

T. Roberts Baker, of Richmond, Va., read a communication from the Richmond Pharmaceutical Association on the subject of prescriptions urging that the association take some active measures to bring about an amicable understanding relative to the general use of a mark to signify the intention of the prescriber when directing an unusual dose of any medicine, and also that some means be urged to prevent the sale and use of opium, morphia, chloral, and other similar medicines, except upon competent medical authority.

Fourth and Fifth Sessions.—Of the business transacted at these sessions, the following were the more important items: The adoption of a resolution that the executive committee procure a suitable badge of membership, and have them struck in metal; the recommendations of the committee on the address of the President, and the report of the Secretary, which were that the bye-laws be so amended that the President may in his annual address offer any suggestions that he may deem for the welfare of the association; that the acceptance, rejection, or publication of papers presented to this association be referred to a special committee; that the duties of the committee on sophistications and adulterations be assigned to the committee on the drug market; that the association communicate directly with foreign pharmaceutical associations, and invite them to attend the meeting of this association in 1876 in Philadelphia; that a committee be appointed to carry out the suggestions made in 1873 relative to the same subject; that there be no exhibition at the next annual meeting, except of specimens accompanying papers read, and that local pharmaceutical organisations be requested to appoint committees to co-operate in carrying out the plans presented relating to the presence of members from foreign bodies. All these recommendations were adopted.

Reading of Papers.—"On Drug Mills," by Andrew Blair, of Philadelphia, was read by Professor Maisch. After narrating his experience and experiments, as well as observations among many of the pharmacists of the country, he decides that for the general uses of the retail pharmacist the best mill is that known as the "Enterprise" mill; next to this, for small uses, is the "Troemner" mill; the "House" mill is adapted to heavy work, and the "Swift" mill is one of the best of the old style of mills, but works quite slowly.

Dr. A. W. Miller, of Philadelphia, read an essay on Mesquite gum. This article is largely obtained in New Mexico and some parts of Texas, and is there used as a substitute for gum arabic Dr. Miller gave an exceedingly interesting account of its collection and preparation for market, its transportation and uses. As a substitute for gum arabic, it makes a mucilage quite as adhesive, but it is not sightly, the colour and odour both being objectionable. It is used to some extent in confectionery, but cannot compete with the lower grades of gum arabic, as the cost of transportation of Mesquite gum is too great.

Geo. W. Sloan, of Indianapolis, Ind., forwarded a paper in reply to the query "Can an agreeable emulsion be prepared from phosphuretted resin, or a desirable liquid preparation?" His reply stated that glycerin suspended it exceedingly well, and gave two formulæ for emulsions, one using glycerin, the other acacia and sugar. He prepared a resin containing ten per cent. of phosphorus, and used this strength in preference.

In the discussion which followed, Professor Maisch stated that phosphorus does not dissolve in so large a proportion in resin, and, when cooled, the phosphorus separates, making a preparation that can hardly be considered uniform.

Dr. Pile said that he preferred to dissolve the phosphuretted resin in almond oil, and then make an emulsion in the usual manner.

W. H. Walling, of Philadelphia, sent a volunteer paper on the dispensing of phosphorus, giving as his formula:—Dissolve six grains of phosphorus in two hundred grains of cacao butter in a bottle by means of the heat of a water bath, and allow it to cool; one hundred grains of Castile soap in powder are then incorporated by gentle heat, and afterwards it is rolled into one hundred pills.

Louis Dohme, of Baltimore, read a paper in reply to query, "Can the contamination of pyrophosphoric acid be prevented in dilute phosphoric acid when the latter is made from the glacial phosphoric acid of different manufacturers?"

Mr. Dohme proved by a series of experiments that the conversion of the meta- and pyrophosphoric acids into the tribasic acid could not be completely accomplished by boiling the solution of commercial glacial phosphoric acid, with or without addition of nitric acid, but found that such a change was effected when a pure metaphosphoric acid which he had made directly from phosphorus was used, and that at a temperature of 280° F. it was completely changed into the tribasic acid. His examination of the glacial phosphoric acids proved that they contained sodium to the extent of about fifteen per cent., equal to nearly fifty per cent. of metaphosphate of sodium. The heating of such a contaminated acid developes pyrophosphate of sodium, and when such an acid is used in connection with tincture of chloride of iron, as is so frequently prescribed, it will invariably form gelatinous pyrophosphate of iron. His examination also proved the presence of arsenic in most of the glacial phosphoric acids and also in phosphorus. He urged, therefore, that dilute phosphoric acid should only be made from phosphorus, and that the U. S. Pharmacopœia should also direct such a modification as would ensure its perfect freedom from arsenic. In conclusion he states that tincture of chloride of iron may be designated as a reagent to prove the presence or absence of meta- and pyrophosphoric acids.

Professor J. P. Remington, of Philadelphia, presented a paper on the same subject. Alluding to the difficulties he had encountered in dispensing dilute phosphoric acid in connection with chloride of iron, he had examined the glacial phosphoric acid and found that it contained phosphate of sodium to an extent of over thirty per cent. In making the acid direct from phosphorus it was found impossible to obtain an acid which would correspond to the description of the U. S. Pharmacopœia. When the dilute acid was prepared from it as directed by the same authority it did not correspond in specific gravity. Detailed experiments proved that the precipitate formed by the addition of tinct. chloride of iron was due entirely to the presence of the sodium salt, which acted by precipitating pyrophosphate of iron, and leaving chloride of sodium in solution. The addition of ammonium citrate caused the solution of the precipitate and a green colour indicating the production of the soluble variety of pyrophosphate of iron. He suggested that the Pharmacopœia should omit the formula for the second process, direct a modification of the first process, and also its being made into a dense solution containing about fifty per cent. of glacial acid.

Professor G. F. H. Markoe, of Boston, read a volunteer paper on the same subject. He had been for a long while engaged in making dilute phosphoric acid, and being unsatisfied with any of the published processes, he had lately constructed one much simpler, safer and satisfactory than any other heretofore made known.

The proportions and processes are as follow:

Phosphorus, one part
Nitric acid, specific gravity 1·42, six parts
Water, one part
Bromine, or hydrobromic acid, a sufficient quantity.

The water, phosphorus, and nitric acid are put into a flask or stone jar capable of holding at least double the amount of all the materials used; a funnel is placed in the neck of the vessel, and over the funnel a smaller funnel is inverted. Into the vessel a *small quantity* of bromine or hydrobromic acid is now added, and as soon as the reaction begins and the vessel indicates rise of temperature it is placed into cold water, care being taken that the temperature is so moderated that the funnels do not become heated. The process now continues till complete, only requiring care about the temperature. When the reaction is entirely over, the liquid is removed from the excess of phosphorus, and heated to drive off any excess of nitric acid and bromine products. (The use of a very small quantity of iodine in connection with the bromine is found more advantageous.) The evaporation of the solution is continued until a dense syrupy solution is obtained, which, by the addition of distilled water, is reduced to the specific gravity of 1·350, when it contains fifty per cent. of *tribasic phosphoric* acid. By mixing this with four parts by weight of distilled water, we have the desired strength of dilute phosphoric acid of the U. S. Pharmacopœia.

Samples of acid to the extent of thirty pounds of solution of fifty per cent. strength were submitted as some of the practical results of this process, all of which had been made recently in his store.

Prof. Markoe then read a paper on the preparation of hydrobromic acid.

When phosphorus and bromine are put in contact in presence of water, they unite, forming pentabromide of phosphorus (PBr_5), and reacting upon water form hydrobromic acid and phosphoric acid.

The apparatus used is simply a gallon stone jar, into which is placed a large glass funnel, through which is passed a funnel tube reaching nearly to the bottom of the jar. Into the jar place a pint of water and a pound of phosphorus, then add enough ice to make the jar about half full; insert the funnel containing the funnel tube, held in its place by a small wedge of cork. Place small pieces of ice in the funnel until about one-third filled. The jar is then placed into a vessel and surrounded with ice, when bromine is slowly added through the funnel tube. The bromine should first be chilled by being placed into ice water, and its addition to the contents of the jar should be but little if any faster than by drops. If this is done the fumes of hydrobromic acid and also of the bromine are at once condensed by the ice in the funnel. The amount of bromine used will be from three to four pounds. At the conclusion of the operation, the liquid is separated from the surplus of phosphorus (which is purposely used in large excess to facilitate the operation), and the hydrobromic acid is separated by distillation from the phosphoric acid. By avoiding the use of much water the process is quite rapid, and the product is obtained with very moderate cost. When the hydrobromic acid has the specific gravity of 1·486, it contains about 47 per cent. of anhydrous acid, boils at 259° F., and has the composition $HBr5H_2O$. The bromides of the alkaloids or bases can be readily prepared from this hydrobromic acid by simply adding an oxide, carbonate, or hydrate to the acid.

T. Roberts Baker, of Richmond, Va., read a paper on the value of hydrate of chloral as a preservative for anatomical specimens. The series of experiments tried by Mr. Baker, as also the actual use of it by several surgeons in Virginia, proves conclusively that this chemical can be substituted with perfect safety for the usual solutions used for this purpose, with the advantage that where subjects for future dissection are thus preserved it causes less inconvenience to the operator and his instrument.

R. F. Mattison, of Philadelphia, read a paper on suppository moulds and their practical uses. His views were that where the operator prefers the cold process the apparatus of A. M. Knowlsen, of Troy, N.Y., offers the advantages of uniformity and variety, as all forms of suppositories can be made by this machine, adapting it specially to the wants of those who have large demands. George W. Sloan, of Indianapolis, Ind., had devised one for smaller use, much simpler and very inexpensive, but this only makes one kind, and that much less rapidly than by the Knowlsen machine. Where the operator preferred the plan of melting the materials, he gave the preference to the mould made by Benton, Myers & Caufield, of Cleveland, Ohio.

C. Rutter, of New York, forwarded a paper on the so-called tasteless iron preparations, in which he tried to establish that the combination was not a chemical one, but rather an admixture of chemicals. Mr. J. L. A. Creuse made a brief reply, showing that Mr. Rutter's experiments were not sufficiently accurate to warrant such a conclusion.

William McIntyre, of Philadelphia, read a paper on the cause of precipitation in making spiritus ammoniæ aromaticus, U.S.P. His experiment proves that when alcohol, U.S.P. (sp. gr. 835), is used there is no precipitation, but when stronger alcohol is used it will always occur.

A paper by J. F. Hancock, of Baltimore, was read in answer to the following query: "Chlorodyne is frequently prescribed by physicians, and seems to be a useful preparation in many cases; give a formula for it which would be suitable for introduction into the U. S. Pharmacopœia." The writer recommended the formula published by Squire, and urged the use of the name, Liquor Chloroform Compound, to distinguish it from the nostrums that flood the market.

Mr. Maisch answered to the query: "Is *artanthe elongata* really the true source of the matico plant; if not, what plant furnishes the drug?" The writer stated that the term matico was applied in South America to a number of different plants which possessed vulnerary properties; but he believed the above plant yielded the bulk of the matico employed in commerce.

In answer to the query, "Rhubarb has of late been much damaged by insect pests; does the rhubarb as shipped in China contain the insect, or does it become infested after arrival in Europe and America?" Mr. William Saunders, of London, Canada, stated that he reared specimens of the insect through the different stages. He had supposed it was the moth common in drug stores, but found it to be a different species, new to him. The query was continued.

A paper in answer to the following query was read by Professor E. Scheffer, "Is pancreatin converted into pepton when it is digested with acidulated pepsin." The writer was enabled by his experiments to assert positively that pancreatin when brought into the stomach became destroyed, and that it therefore could have neither physiological nor therapeutic effect when administered internally.

Professor G. C. Wheeler, of Chicago, read an answer to the following query: "It is asserted that it is highly dangerous to mix nitric and carbolic acids, on account of the violent and instantaneous explosions that almost invariably occur; what are the proportions most likely to occasion the explosions, and what are the chemical reactions resulting when these two substances are brought into contact?" The circumstances that gave rise to this query were, that a professor in a western college poured some nitric acid into a bottle containing a trifling amount of carbolic acid, causing it to burst and destroy his eyesight. The result of the experiments by Professor Wheeler proved that the so-called explosion was the rapid development of gases which in their violent liberation projected the nitric acid in all directions and into the face and eyes of the professor.

Mr. Joseph Roberts, of Baltimore, read an answer in reply to the query: "What are the best tests of purity of hydrate of chloral?" The writer stated there was no chloral in the market which would answer all the tests of the U. S. Pharmacopœia. All chloral, from whatever source, contained some uncombined chlorine and would afford a precipitate of nitrate of silver, though the amount of precipitate was very slight. When tested for the amount of chloroform, the practical yield came very near to the theoretical amounts which should be present. Mr. Roberts suggested that hydrate of sodium yielded a better result than hydrate of calcium for the purpose of separating the chloroform. Also that formic acid was the most injurious contamination likely to be found, and was best tested by the amount of alkali necessary to neutralise it, which could be determined by the ordinary process of volumetric analysis.

Professor Maisch spoke of the immense traffic in patent medicines. The association professed to be opposed to the sale of these medicines. The efforts of pharmacists in this direction would amount to nothing so long as patent medicines were called for by the public. The question had been agitated what was the best means of informing the public of the dangerous nature of many of these nostrums. Dr. Frederick Hoffman, of New York, had suggested the publication of a health almanac similar to those issued by the proprietors of patent medicines, which should contain analyses of such preparations. Circulars had been prepared upon this subject which Mr. Maisch desired to have distributed to the association.

President Markoe exhibited two evaporating dishes, made of rolled block tin, and stated that they were greatly superior to the tinned copper vessels, the latter of which were liable to contaminate preparations through the exposure of the copper by the burning away of the tin. Such dishes could be made by any coppersmith, were useful for a variety of purposes, and were but little more expensive than the Berlin porcelain dish.

In answer to the following query, "Can the formula for scammony resin (U. S. P.) be improved, and what is the objection, if any, to the exhaustion of scammony by alcohol at ordinary temperature and simple evaporation of the tincture?" Mr. Markoe stated that from experiments made thus far there appeared to be no great difference in the actual percentage of resin as prepared by simple evaporation or precipitation with water.

The following query was answered by Randall Rickey, of Trenton, N. J., in the negative: "Can the alkaloids of cinchona be extracted together in crude form, yet sufficiently pure to permit a ready detection of adulterants; and if so, can the process be profitably carried out by the pharmacist?"

Among the remaining papers of interest was one on impurities in sulphuric ether, read by Professor P. W. Bedford. The speaker had made careful experiments as to the specific gravities of each variety found in the New York market, noting the loss in volume when mixed with water. Most of the better grades were entirely satisfactory and fit to use for producing anæsthesia, while the commercial grades varied considerably in quality. The speaker gave a statement as to the impurities and other results obtained.

A paper on the impurities of commercial bicarbonate of soda was read by the same gentleman. The paper gave the results of the examination of eleven brands of this article. Four were of English origin, two from France, and five of American manufacture. The examination gave the amount of carbonic acid, of exsiccated carbonate of soda, and the impurities of chlorides and sulphates present. In an article manufactured on so large a scale it was very satisfactory to know that the amount of impurities present is so small. In discriminating, however, he stated that the order of purity was as follows:—National, Greenwich, Allhausen's, Scheiny's, French, Chance's, Janow's, Kidder's, Dwight's, Church's.

The committee on the time of the next annual meeting reported, through the chairman, W. J. M. Gordon, of Cincinnati, in favour of holding the next annual meeting on the second Tuesday of September, at 3 P.M., and the recommendation was adopted. The committee also reported that the invitation extended to the association by the delegates from Ontario, Can., to hold the meeting of 1877 in the city of Toronto had been cordially renewed.

The committee on nominations reported the name of A. W. Miller, of Philadelphia, for local secretary, and that gentleman was elected.

William Saunders, of London, Ontario, presented a paper by Professor J. P. Remington, on a new method of administering medicines. It consisted simply of a couple of discs prepared from a flour paste; the medicinal material is placed between the discs, which are then placed in a spoonful of water, and as soon as it becomes moistened can readily be swallowed without experiencing any taste of the medicinal ingredient.

A paper by James G. Steele, of San Francisco, Cal., on *grindelia robusta*, was read by Mr. Shepard, of Boston. This substance was stated to be a specific for the poison of poison oak and a valuable remedy for asthma. With the paper were submitted specimens of the dried plant pressed, and of fluid and solid extracts.

Professor Markoe stated that the Pharmacopœia process of making spirit of ammonia yielded a very unsatisfactory product, never twice alike; that the description given of it was incorrect, inasmuch as the materials taken by the Pharmacopœia never gave a colourless solution. The small amount of organic matter derived from the casks in which the alcohol was sold produced with the ammoniacal gas a more or less deep yellow colour. This objection could be overcome by re-distilling the alcohol previous to conducting the ammonia gas into it.

A volunteer paper was presented by William Saunders, of London, Ontario, on the production of "rubber" from the common milkweed—*asclepias cornuti*. The writer showed that by the action of fermentation on this weed the yield of elastic vulcanisable gum was largely increased and very much improved in quality, as compared with that obtained from the fermented weed. Mr. Saunders gave as the result of his experiments a yield of 5 per cent., and he thought that the yield might be increased if the weed was ground to a greater degree of fineness before fermentation. Samples of the products were submitted to the meeting.

The following papers were read by title and referred for publication:—

"Alcohol and Mucilage of Acacia," by M. S. Bidwell, of Elmira.

"Pharmaceutical Legislation in New Jersey," by James R. Merceni, of Jersey City.

"Syrups prepared by Percolation," by Clay W. Holmes, Wilkesbarre, Pa.

"How to Improve the Practice of Pharmacy," by R. W. Gardner, of New York.

"Unguentum Hydrargyri Nitratis," by James S. Whall, of Boston.

"Mortar Practice," by H. T. Cummings, of Portland, Me.

An exhibition was held in connection with this meeting, and handsome collections of drugs, &c., were displayed by Messrs. Lazell, Marsh & Gardiner, and McKesson & Robbins, New York; also by Messrs. Southall Brothers & Barclay, Birmingham, England.

HOMŒOPATHIC SCIENCE.

THE British Homœopathic Congress held its annual session at Manchester, on September 9, under the presidency of Dr. Bayes. The President's address, which is published in the *Homœopathic Review* for October, is a very forcible argument in favour of the principles of the homœopathic school of medicine.

Hahnemann [said the lecturer] founded his system on the theory that disease is a derangement of vital force, and that it is best cured—*i.e.*, most readily, most certainly, and most permanently cured—by the administration of such drugs to the sick as are capable of producing a derangement in the healthy similar to that of the natural disease.

Whether, as some of the foremost physiologists of the present day assert, there be vital force at all does not affect our argument. Vital force is a convenient term by which to signify the activity of life, even if it lack scientific accuracy. Hahnemann certainly did not look upon a patient as "a complex congeries of a number of subordinate quasi-independent living units, whose life is complete in themselves." Though, had he done so, his method of symptom-treatment would have equally suited the ailments of the "quasi-independent units" as of the individual man or woman they collectively go to compose.

In Hahnemann's day physiologists were more fanciful and pathologists were more materialistic than we are at the present day. Hahnemann's propositions in the earlier part of the "Organon," that disease is simply a want of balance of vital force, shocked the materialistic pathologists of the day, who looked on diseases as peccant matters to be cast out of the body; to be poured out in a stream of blood from the arm, or to be drawn out of the skin by a blister; to be purged out of the bowels by cathartics; to be vomited out of the stomach by emetics; to be washed out through the kidneys by diuretics; to be sweated out of the skin by sudorifics, or to be tortured out of the tissues by setons. His idea that disease is simply a derangement of vital force was an immense step toward that "conservation of life" which is now admitted, on all sides, to be the true principle of treatment, however we may differ as to the details of the therapeutic means by which this indication is to be effected.

This idea of Hahnemann's in regard to disease has been adopted by the majority of the profession during the last fifteen or twenty years, showing how prophetically Hahnemann foreshadowed in his day the coming theories of our own.

In his lectures "On Pathology and Therapeutics," Dr. Bence Jones wrote:—

"You must entirely banish from your minds the notion that diseases are catastrophes or separate entities, to be destroyed within or to be ejected, like devils, without, by which a perfect cure can only be obtained; and you must more and more be fully possessed by the fact that all diseases are the increase or diminution or qualitative modification of the never-resting correlated forces which constitute life."

It is not safe, however, in our present state of "never-resting" scientific thought and imagination, to attempt to lay down such unconditional explanation of all diseases.

The view that infectious and contagious diseases own as their cause a "contagium vivum," and are spread by organisms of extreme minuteness, which float in the air, or which exist in our drinking water or in our food, and which, entering through the mouth, nose, or skin, are propagated within the bodies or upon the bodies of infected patients, has met with able advocates, both in this country and abroad. Budd, Tyndall, Beale, and others have demonstrated this theory by many apparently incontrovertible facts.

The principle of homœopathic practice is that each medicinal drug has at least two apparently opposite actions, according to the dose given. That in a certain dose each medicinal drug tends to paralyse a given tract of nerve, while in a certain other dose it acts as a stimulant. If the large and pathogenetic dose of cantharides or terebinth paralyses the sympathetic branch of the renal plexus, we know, from carefully recorded experiments, that the minute or infinitesimal dose will stimulate the same nervous tract.

But, it will be asked, what right have we to assume that medicinal drugs possess these opposite powers? What right have we to assert that the same drug which paralyses in the large dose will stimulate in the minute or infinitesimal dose? Or, to reverse the proposition, that the same drug which is a stimulant in a small dose will be a narcotic or a paralyser in a large dose?

No better example can be given, in illustration of these points, than that of alcohol. Its stimulating action is so well known by the fatigued in mind or body that its power to paralyse is apt to be overlooked or forgotten.

Dr. Bayes then discussed these two actions of alcohol in support of his doctrine, and he maintained that "opium, ipecacuanha, nux vomica, cantharides, colocynth, in fact every drug in the Materia Medica, follows the same law in its medicinal effects. A moderate dose of opium, for example, will narcotise a healthy man, but given to a man preternaturally drowsy from threatened apoplexy, a small dose will bring the hyperæmic vessels of the brain back to a proper state of tension by its gently stimulating effect on the sympathetic (inhibitory) nerves supplying and controlling those vessels."

Dr. Bayes claims that from these and many other considerations the truth of the homœopathic system can be established on a true scientific basis, and he also endeavours to prove the rationalism of the still more audacious innovation of infinitesimal doses:—

This practice, we are told by our opponents, and even by some of our friends, is contrary to common sense. I allow that it is contrary to common sense founded on past allopathic experience, just as the locomotive power of steam was theoretically opposed to the common sense of the old stage coachman, or as the electric telegraph was contrary to the common sense of the workers of the old semaphore, but in no other way is it more contrary to common sense than is any other new discovery. Still I accept the proposition that before we can overcome the opposition of physicians of the old school to this new practice we must be prepared to show, firstly, that antecedent probability exists as to the reasonableness of our belief that they will act; and, secondly, we must be able, by proofs of a practical kind, to show that they do act.

As to antecedent probability, are we acquainted with any facts which prove to us that infinitesimally small agents possess the power to attack a healthy or apparently healthy man and prostrate him with disease?

The microscope, which introduces a difficulty in the way of the universal acceptance of our rule of "similars," as the sole indication for the cure of disease, clears away much of our difficulty as to the acceptance of the probabilities of the active powers of agents themselves of infinitesimal minuteness. Organisms of extreme minuteness, far exceeding in littleness the particles of our third dilution, are proved to be capable of inducing disease, and even of destroying the lives of thousands of human beings. We have seen, but as it were yesterday, whole communities swept off by measles in the Fiji Islands. In like manner former epidemics of small-pox, scarlatina, cholera, &c., have, both in Europe and other countries, swept off thousands and even hundreds of thousands of lives. Yet the organisms which induce these diseases are invisible to the naked eye, and in no way can be recognised by the unaided senses till they have entered into and have overcome the body by their malign and powerful influence.

In vaccine lymph, we have seen it asserted that the organisms which reproduce it are but the 20,000th of an inch in diameter. Other of these living and prolific organisms are said to be smaller still. But, whatever their absolute size may be, the organisms which produce infectious diseases probably are relatively infinitely more minute than the blood globules of the creatures they invade. Possibly this is the law of infection. It is not yet proved to be so, but the facts at present recorded point in this direction, and the attention of many competent observers being directed to this subject, we may expect ere long new enlightenment upon it.

This is one of the series of examples of the power of infinitesimal organisms to induce disease. A second series, and one that comes still nearer in kind to the class of action we desire to illustrate, is to be found in the toxic power of infinitesima agents upon certain individuals whose idiosyncracy renders them more than usually sensitive to the special influence of the particular drug. The pathogenetic effects of ipecacuanha, in the minutest atoms, on the mucous surfaces of certain persons, is well known. So is the influence of arsenical wall-papering, which has exerted toxical effects on a large number of patients. Other individuals are so sensitive to mercury that I have known an instance where even the 12th dilution (*i.e.* the quadrillionth part of a grain) could not be given without inducing mild salivation and great discomfort. So also, the sensitiveness of some patients to the action of arnica is most instructive. I have mentioned some instances of this susceptibility in my article on arnica in my work "On Applied Homœopathy;" but two still more extraordinary cases have also occurred in my experience. In one, the patient (a banker advanced in years), was threatened with cerebral congestion, for which I prescribed arnica. He warned me that arnica always caused erysipelas with him. "In that case," I said, "I will give you such a dose as cannot possibly produce such an accident;" and I ordered him the 18th dilution. Next day he had decided swelling and erysipelatoid rash round the mouth and affecting specially the upper lip. I have also another patient, a lady of high rank, whose sensitiveness goes even beyond this. Her husband and children, fond of field sports, and, of course, consequently liable to troubles both from fatigue and from accidents, use by my advice a small quantity of arnica in their bath after an unusually tiring day; or an arnica lotion or compress for bruises or strains. But, under those circumstances, if they go into the same room where Lady —— is, either after their bath or after using the lotion, she invariably has slight erysipelas of the face, with puffiness of both eyelids and great irritation of the skin. Her last attack of the kind was induced by her having thoughtlessly mixed a dose of a dilution of arnica for her husband, one drop of which fell on her finger, and although she immediately washed it off, she had erysipelas in the face next day.

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We can conceive few conditions more rich in pleasure than that of a confirmed and confident homœopath of the present day. We are not referring simply to the safe protection which the walls of his system afford him from the foul and cruel torments which allopathic remedies must inflict on the disciples of the old school. This consideration goes for something; but it is a loftier dream than this from which homœopathy derives its strength. To the allopath all is uncertainty, and the bases of his belief shift like the sand; to the homœopath all is light, definiteness, and scientific accuracy. His system, admitting a few postulates, is capable of being proved with mathematical certainty. And then—and this enjoyment surpasses all the rest—he belongs to a persecuted and an ostracised sect. He has all the happiness with none of the inconveniences attendant on this blissful condition. He is a martyr for the truth, but a martyr in very comfortable circumstances. He is the pioneer of a new and glorious civilisation in medical science, and he proudly places himself, as Dr. Bayes does in this very address, by the side of Moses among the priests of Egypt, or St. Paul among those of Greece and Rome, as the apostle of a new Evangel. "Therefore," says Dr. Bayes, "we ought to accept calmly from our opponents such treatment in word and deed as we should carefully abstain from returning in kind. Our own self-respect, based on our knowledge of the truth of the doctrines we follow, should save us from returning evil for evil. We have but to wait God's own time, and that truth of which we are the exponents will as surely attain its place, and those errors which it has been and still is our province to oppose will as surely perish, as have all other truths triumphed and all other errors ultimately sunk into a merited oblivion."

To be animated with such an assurance of the right and truth of the cause which at the same time yields us a very comfortable living is in these sceptical times an anchor and a compass for the mind which may well induce that tranquility which Dr. Bayes urges on his friends.

LIVERPOOL NEWS.

Liverpool Chemists' Association.

The annual meeting of the twenty-sixth session was held at the Royal Institution on the 30th ult., the President, Mr. Alfred H. Mason, F.C.S., in the chair. The minutes of the previous meeting were read and confirmed. Mr. J. Haddock was elected a member. The Honorary Secretary then read the annual report:—

"The report of the proceedings of the Liverpool Chemists' Association for the past session presents, for the most part, the usual features of moderate progress. Although at the commencement there were unfortunately some adverse circumstances, as the session progressed harmony was restored, and your council trust that with its aims and scope more clearly defined your association has before it a future of usefulness and influence.

"During the past session two honorary members, nine members, and three associates were elected, the numbers at present on the books being 157, comprising honorary members 16, members 123, associates 18.

"There have been eight evenings devoted to the reading of papers and discussion, four conversaziones, and one lecture. The lecture by Mr. Louis Siebold, F.C.S., was numerously attended, and was a most successful demonstration of a difficult subject. The papers read have been fully equal in interest and importance to those of former sessions.

"The conversaziones have been more numerously attended than in the previous session, attracting as large a number of members as the meetings devoted to papers. Your council propose to continue them on the alternate evenings, and earnestly invite members to assist by bringing microscopes, new drugs, new apparatus, and generally anything novel relating to chemical and pharmaceutical science. On these evenings short papers or lectures will be acceptable. Some of the meetings have been held in the Gallery of Art, and have afforded the members an opportunity of enjoying the valuable art treasures which it contains.

"The disordered state of the museum has long been a source of regret to your council, and they are glad to be able to state that a plan for rearrangement has been agreed upon, and a beginning made by arranging the farthest case, which contains products of the animal kingdom on one side, and on the other numerous fine specimens of vegetable alkaloids and other organic products, also a collection of rare inorganic chemicals. Numerous specimens of essential oils which were unnamed have been examined and labelled. Several valuable donations have been received during the past session, among which may be specially mentioned a portrait of the late Mr. Thomas Newborn Robert Morson, F.C.S., given by his son.

"The library has been used to about the same extent as in former years. The state of the funds of the association has not permitted the purchase of books, but the supply of periodicals has been kept up.

"The question box has not been used as much as your council hoped, and they would call the attention of members to this means of obtaining a solution of any difficulty which they may meet with in their studies or in practical work.

"After several unsuccessful attempts, a class for the study of chemistry was formed, and a complete course of lectures on inorganic chemistry delivered. At the same time the number of students was so small that your council do not feel themselves justified in continuing to supply instruction in this important subject until there is more evidence of a desire on the part of students to avail themselves of it.

"Messrs. Armstrong, Mason, Redford, and Shaw were appointed delegates to the British Pharmaceutical Conference.

"The following members of council retire by rotation, but are eligible for re-election:—Messrs. Hallawell, Jones, Mason, and Tanner. The new law in relation to the election of members of council comes into operation this year, and your council trust that by means of it a more perfect representation of the views of the members will be obtained.

"The report of the finances of the association as presented by your Treasurer shows a balance of 5*l.* 3*s.* 1*d.* due to the Treasurer."

The President, in moving the adoption of the report, &c., said that it would on the whole be satisfactory if they could only do without the Treasurer's statement. He regretted that the balance due to the Treasurer was fourpence in excess of last session, but there had been additional expense in connection with the report, and against this liability there were subscriptions and arrears amounting to 9*l.*, which he hoped would prove good debts, and thus relieve the association from further anxiety on this score.* He called attention to the fact that some work had already been done in the museum, and considerable improvement made there. He regretted that the attendance at the chemistry classes had been so unsatisfactory, and that, this being the final attempt of the council, they could not be continued unless a special demand should spring up for them.

Mr. Woodcock seconded the motion, which was carried *nem. con.*

Messrs. A. H. Mason, J. Hallawell, W. C. Parnell, and C. Jones were elected members of council in place of the retiring members.

The usual votes of thanks to the donors to the library and museum, the authors of papers, &c., and to the officers of the association, were carried unanimously.

A resolution was passed by which the ordinary meetings of the association will terminate at the end of April instead of May as heretofore.

A resolution was passed by which the President will be elected at the last meeting of the session *by the members*, instead of after the annual meeting by the council as heretofore.

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* Since the meeting the Treasurer has been fully reimbursed.

A resolution was passed asking the council to consider the desirability of holding the meetings an hour earlier, the chair to be taken at 7.30 instead of 8.30.

After some discussion relative to the resolutions, the session terminated.

Mr. Alfred H. Mason, F.C.S., has been unanimously re-elected President of the Liverpool Chemists' Association, and will deliver his inaugural address at the Royal Institution on the 21st inst.

The Public Analyst's Report.

Dr. Campbell Brown, the public analyst, reported that during the quarter ending September 30 a number of samples were submitted for analysis, among which were the following:—

One sample of anchovy paste, which was coloured by the admixture of a large quantity of oxide of iron; one sample of strawberry jam, which was compounded entirely of fruit and sugar, although other fruits than strawberries formed a great part of the bulk; one sample of butter, which was somewhat rancid and composed of scraps; one sample of black pepper, which contained six parts per cent. of sand or ground stones, and which had evidently been imported along with the berries. In consequence of the prospective repeal of the Adulteration Acts, no further legal proceedings had been taken. The remainder of the quarter was occupied with the investigation of the wholesomeness of certain kinds of beer, experiments on which were still in progress.

Playing with Arsenic.

A lamentable accident occurred last month at Edgehill, near Liverpool, caused by leaving arsenic about in an unguarded manner. A woman named Margaret Hall, wife of an engine driver, was cleaning the skirting-boards of the bedroom with water mixed with arsenic, the object of using the latter being to destroy bugs. Before proceeding upstairs she left a portion of the poison that she did not want temporarily on the boiler-lid in the scullery, which was in darkness at the time. Whilst employed cleansing the upper room she overheard her eldest daughter Mary, 3½ years of age, who was in the kitchen, enticing her two younger sisters, Emily and Margaret, respectively 18 months and 7 months old, to take some sugar. The mother, suspecting that the little thing was stealing the sugar from the table, on which tea was laid out, awaiting the coming home of the husband, came downstairs. On entering the kitchen she found to her horror that her children were playing with the arsenic, the eldest daughter being in the very act of feeding her sisters with it. They had mistaken it for sugar, and portions of the powdered arsenic were lying in wet lumps on the frock of the baby, indicating that it had spit the poison out of its mouth. Mrs. Hall at once raised an alarm, and Dr. Shepperd, of Durning Road, was immediately called in. He administered an emetic to the young sufferers, and prescribed in the customary manner, but, notwithstanding all his exertions, the infant, Margaret, never rallied, and died from the effects of swallowing the arsenic about half-past three the next morning. It appears that the father of the children purchased half a pound of arsenic a few days ago at the shop of Mr. Johnson, wholesale druggist, Church Street, for the purpose of getting rid of "bed pests," and he placed it on a top shelf in the back kitchen. His wife, after taking the quantity she required for use from the large paper bag in which it was wrapped, unfortunately did not put the rest back in its former place, but allowed it to remain on the boiler. Even here, however, the children could not get at it by ordinary means, and it is presumed that the eldest child must have reached it by clambering up a perambulator which was standing near the boiler. Luckily, little Mary, though treating her sisters to the so-called "sugar," took none of it herself. Had she done so the whole family would have been poisoned. The occurrence has caused a very painful sensation in the neighbourhood.

PHARMACEUTICAL SOCIETY OF IRELAND.

The council of this society has been busily working at framing the bye-laws of the new society, and has already made very fair progress. The fact, however, that the council has not yet decided whether there shall be one class of compounders only, viz., pharmaceutical chemists, or two, as in England, somewhat hampers the proceedings, and some of the council are of opinion that a decision should be come to on that point at once.

The prophecy of The Chemist and Druggist, that it was a pity reporters were to be excluded, as, from the elements composing the council, "lively scenes" might be expected, has not yet been verified, as so far the greatest harmony prevails.

The fees to examiners are fixed at half a guinea each candidate for each examination, and the registration fee is to be three guineas. Rejected candidates to forfeit two guineas.

The examinations are classified as follows:—

1. Latin, English, and Arithmetic.
2. Materia Medica and Botany.
3. Pharmaceutical and General Chemistry.
4. Practical Pharmacy.

The elections for the examiners took place at the adjourned meeting, held on Wednesday, October 6, at the College of Physicians, Sir D. Corrigan, Bart., &c., in the chair. The election was by open voting. The following were the successful candidates: Latin, English, and Arithmetic, E. W. Collins, M.D., 33 Lower Baggot Street; Materia Medica and Botany, W. G. Smith, M.D., 34 Lower Baggot Street; Pharmaceutical and General Chemistry, H. N. Draper, Esq. (Bewley & Draper), 23 Mary Street; Practical Pharmacy, R. Montgomery, Esq., M.R.C.S., L.A., 4 Gardiner's Row. About eighteen candidates competed. The following gentlemen were appointed sub-committee to arrange design for society's seal: Dr. Aquilla Smith, Dr. Frazer, and Dr. Leet.

The following notice of motion appeared on the summons:—

III. Notice of Motion (Mr. E. M. Hodgson): "That, in accordance with Clause 15 of the 38 & 39 Vict., chap. 57, the Council of the Pharmaceutical Society of Ireland may allow certain persons to assume the title of 'Chemist and Druggist;' and that such title shall in future mean a person entitled to keep open shop for the sale of drugs and poisons, as specified in the Poisons Act, 33 & 34 Vict., chap. 26, subject to an examination as to the character and properties of the medicines specified in that Act; certificates for which shall in no way convey the privilege of compounding physicians' or surgeons' prescriptions."

IV. Notices of Motion (Mr. W. Hayes):

No. 1. "That all persons in business on their own account as Chemists and Druggists for a period of not less than three years shall, on making application within one year, and passing such practical examination as the Examiners and the Pharmaceutical Council may think fit, be entitled to be registered as Pharmaceutical Chemists, on paying the necessary fees."

No. 2. "That all assistants and apprentices who have been engaged as such at the business of Chemist and Druggist, or Practical Pharmacy, for a period of not less than three years, on making application within one year, and passing such modified examination as the Examiners and Pharmaceutical Council may think fit, shall, on paying the necessary fees, be entitled to be registered as Chemists and Druggists, and to engage in business on their own account as such; but such registration shall not entitle them to compound physicians' prescriptions."

Mr. Hodgson said that since he gave his notice of motion, he had carefully studied the bill, and was of opinion that his motion could not be carried, as it was in opposition to some clauses of the Act, and, with the council's permission, he would withdraw it. The motion was withdrawn.

Mr. Hayes asked permission to make some alterations in his first motion, to insert after Chemists and Druggists "at the passing of the Act," omitting "for a period of not less than three years," and insert Chemists and Druggists in place of Pharmaceutical Chemists. After considerable discussion the sense of the meeting was taken as to whether Mr. Hayes should be allowed to alter his motion so materially. A division was taken, the result being an equal show of hands for and against: the President gave his casting vote against Mr. Hayes' alterations being allowed.

Mr. Hayes asked to be allowed to make the following alterations in the second motion—insert "5 years" instead of

"3 years," leave out the word "examiners," and omit all after the words "as such."

The council declined to allow the alteration. Mr. Hayes handed in his motions as altered, to be considered at the next meeting.

A lengthy discussion took place as to the 15th clause, some of the council proposing to proceed with it at once. On taking the votes it was decided to postpone its consideration.

Dr. Whittaker handed in the following notice of motion:—

"That the Council of the Pharmaceutical Society determines there shall be only one class of persons entitled to compound physicians' prescriptions, viz., Pharmaceutical Chemists."

Mr. J. T. Holmes handed in the following notice of motion:—

"That the council determines to allow certain persons to acquire the title of Chemist and Druggist, subject to such terms as the council shall think proper."

The next meeting of the council takes place on Wednesday, November 3.

OPENING OF THE SOUTH LONDON SCHOOL OF PHARMACY.

THIS institution was opened formally on September 16 at eleven o'clock A.M. by a short address from the Secretary, Mr. Baxter, coupled with the reading of his annual report. The lecture room was filled with a numerous company of present and past students, together with several gentlemen having an interest in the school.

Mr. Baxter, before reading his report, said that in meeting them all on this annual occasion he was happy to say that the school had suffered no loss of prestige, but had been found to work more efficiently under the new regulations than under the old. His report would confirm this statement, and bear it out by stern figures, which were better guides than mere empty statements as to this or that school giving the most thorough instruction or being the cheapest and most successful in the kingdom.

Since the new regulations of the Pharmaceutical Society, the management had provided for two distinct grades of students; (1) Class A, who, desirous of working slowly but surely, entered for the entire session of ten months, and (2) Class B, for the purposes of which three courses of lectures were given during the session, lasting three months each, and specially designed for those who had already studied to some extent, and to whom such a course offered a reasonable and fair chance of success. He was happy to say that at the present time the Class A men were no inconsiderable part of the whole, while applications for the two forthcoming B courses were still flowing in. It was a curious and instructive fact, showing the nonsense that had been talked about the school, that while the parent institution at Bloomsbury Square was shortening its courses, the South London School were lengthening theirs, and continually obtaining more entries for the full ten months' course. This was a matter of great congratulation to the management, showing them that in retaining the services of so superior a teacher as Dr. Muter they were on the right road to success.

The report which was then read of the last session's work may be summarised as follows:—

Total number of students in laboratory		119
Divided as follows:—		
Junior Pharmaceutical	105	
Senior do	9	
Special objects:—		
Royal College of Surgeons	1	
Analytical Chemists	3	
Medical Officers of Health	1—5	
Students not attending the laboratory (Modified)		3
Total number of students		122

Of these the following concluded their work thus:—

Passed Major	8
Failed Major	1
Passed Minor	70
Failed Minor	24
Passed Modified	3
Did not present themselves for any examination	15
Passed R.C.S.	1
Total	122

The average attendance in the laboratory was nearly five months, and the shortest attendance (one man only) two months.

Comparing, for example, the success of the school against that of others, if we take the London Minor only we find that of South London students 73 presented themselves and 19 passed, while from every other school in England 161 students presented themselves and only 45 passed, thus proving the good of a judicious lengthening of the courses and sound practical laboratory work.

After reading the report, Mr. Baxter said in conclusion that "the points to ensure success are punctuality in attendance, obedience to the teachers, and diligence in home study, and I now leave you in the hands of the director and his staff, and exhort you to improve your opportunities for your own credit and the satisfaction of your friends."

Dr. Muter then entered the rostrum and delivered his opening lecture upon the "General Properties of Matter."

NISKAYUNA PHARMACY.

IN the fertile valley of the Mohawk, a neighbourhood rendered almost classical by the gifted pen of Fennimore Cooper, existed half a century since, and still exists, an unpretentious settlement of Quakers of the *nuance* known in America as "Shaking."

This and a sister family at New Lebanon, some twenty miles distant, are and have been for many years in successful working, reaching a financial success and mental tranquility of life exciting the envy of the restless ever-changing and unsatisfied inhabitants of the populous cities of Albany and Troy, which are to be found in the immediate neighbourhood.

To these inoffensive "peoples" belongs the credit of having continued the traditional medication of the indigenous Red-skin populations of these romantic districts.

Herb doctors—innocent of a diploma, feeling a vocation, perhaps—have always been in vogue in Yankeedom. The vegetable kingdom has been ransacked for recondite remedies: an instinctive horror of mineral remedies has always existed in the American mind. "Entirely vegetable" has been the motto of the pill men from time immemorial, and until recently any attempt at making fresh victims by a new syrup, or other special remedy, had to be preceded by the discovery or invention of a catching Indian title. This latter fashion, however, has given way to more modern and scientific cognomens. The popular penchant for herbal remedies being fostered by the perambulating prescribers and many local adepts in the healing art, the "Shakers" developed their speciality as the recognised purveyors of supplies—adding to the gathering of the herbs and roots which grew wild the cultivation of such of them as admitted of that treatment. They also inaugurated a very neat and convenient style of packing, which tended greatly to the development of business. The roots, herbs, and plants were compressed into small oblong packages of uniform size, trimmed by a cutting machine, and containing the various quantities of one ounce, four ounces, half pound, and one pound—neatly labelled with the botanical as well as the ordinary title of the contents. Consequently every drug store now has in stock a variety of "Shaker herbs," and they are of such recognised importance in American pharmacy as to lead to their being regularly quoted in the price current department of the leading American drug journals.

A catalogue before us contains nearly two hundred different kinds which are packed for the trade in this way, and it should be mentioned that an entire confidence is felt in those herbs coming from the Shakers—much more perfect probably than would ever be accorded to a private commercial firm engaged in a similar enterprise. Of late years the clairvoyant medical mania has much enlarged the demand for these products, as the extraordinary prescriptions emanating from these supernaturally gifted seers always comprise herbs, and generally those of the most unknown character, or at least, if not unknown, little used by other practitioners.

The demand in former years ran principally on boneset, catnip, horehound, lobelia, pennyroyal, peppermint, sage, summer savory, tansy, thyme, and wintergreen. Extracts of some of the roots and herbs were also prepared, but have since been superseded by the *in vacuo* products of Messrs. Tilden, Thayert, and other manufacturers. Without attempting to mention all the industries to which the Shakers devoted themselves with such a commendable industry, we shall not forget to note that they were versed in the preparation of what Sam Slick was pleased to call "apple sass," the edible qualities of which we can vouch for personally. Mention of the peculiar domestic regulations of our Niskayuna and New Lebanon "friends" would be more appropriate in another periodical than in one devoted to pharmacy. Marrying and giving in marriage were unknown in their communities; their numbers were recruited from the cast-aways and orphans of the neighbourhood, and while the aggregate never very materially increased, there certainly appeared to be no diminution during a series of years.

Occupying as they do several hundred acres of the most fertile land in the State of New York, without debts or ambition for worldly display, they seem to lead a tranquil existence, devoted to the slow accumulation of wealth, and to realise the ideal that "a contented mind is a continual feast."

BENZOIC *VERSUS* SALICYLIC ACID.

By R. Rother.*

IN spite of the tremendous *furor* that a number of interested writers are making about salicylic acid, the star of this novel and noteworthy substance is even now declining. Most of the glowing reports extolling its wonderful powers were baseless exaggerations, to say nothing of the pure fictions that were manufactured and circulated regarding the disinfecting properties of salicylic acid. The writer had been using benzoic acid as an antiseptic and preservative of certain decomposable solutions with most satisfactory results, as, for instance, in solution of magnesium citrate, both in the form of a concentrated stock solution four times the officinal strength, and the ordinary officinal state; then the "cream syrup" for soda water, also a concentrated coffee syrup, one to sixteen for soda water, solutions of citric and tartaric acids, and several fermentable officinal syrups. The first application the writer made of salicylic acid was in the preparation of syrup of althæa. An excess of salicylic acid was employed more than the water could dissolve. In less than a week the syrup was covered with an extra heavy and exuberant growth of mould, and several days later it passed into active fermentation. The next trial was with red raspberry juice. After the bruised berries had fermented twenty-four hours one drachm of salicylic was added to a quantity of berries representing three gallons of juice; six hours later the magma was pressed and then the fact became apparent that the fermentation was still active—in fact, from the profuse evolution of carbonic acid, it seemed now to be in its most energetic condition. Another drachm of salicylic acid was now added, but six hours later fermentation had not ceased; and, moreover, from the very perceptible acetous odour, the inference was at hand that the acetic fermentation had also begun. One drachm more of salicylic acid was then added, which either stopped the alcoholic fermentation or this ceased simply from the exhaustion of fermentable material. But twelve hours afterwards it was found that the acetic fermentation was raising havoc with the juice, and an additional drachm of salicylic acid was incorporated. It, however, soon became evident that even now the juice was rapidly spoiling, and the writer, in order to save it in its already deteriorated condition, speedily mixed a part of it with four per cent. of alcohol, and converted the remainder into a dense syrup by the addition of sugar.

The writer found that neither salicylic nor benzoic acid will preserve milk, unless added in excess of the natural alkalinity; a comparatively large amount of either will then be required. A mixture of one pint of milk, one pound of granulated sugar, one fluid drachm of tincture of vanilla, and five to ten grains of benzoic or salicylic acid, makes a very permanent "cream syrup;" in fact, such a mixture will remain "sweet" for several days, even in the hottest weather, and the writer has not had a single case of "sour cream" during the whole season. It was, however, found that a small remnant of milk or "cream" remaining in a large bottle became putrid within the space of a week, and, although salicylic acid was added, equal in quantity to the decomposing mass, the offensive effluvium was not diminished in the least, however prolonged the contact might have endured. This circumstance is ample illustration that salicylic acid is by no means a disinfectant.

The conversion of lactin into lactic acid, then into butyric acid, and ultimately into the more odorous products of putrid fermentation, is either checked or entirely obviated in the presence of a perfect antiseptase—that is, any agency which counteracts the effects of septism, and during which action the antiseptase remains indefinitely intact; but an antiseptase, which is also a disinfectant, must finally disappear entirely when placed into an already decomposing body, since the process of disinfection consists partly and importantly in a chemical disintegration of the various elements concerned. Hence, as salicylic acid does not itself decompose in a putrescent mixture, it cannot consequently be a disinfectant, even if it is to a certain extent an antiseptase.

Prof. Salkowsky, of Berlin, has quite recently demonstrated that salicylic acid, in concentrated aqueous solution, will temporarily suspend the appearance of putrefaction, but cannot prevent its occurrence, and that it has no deodorising qualities whatever. If decaying fluids are mixed with salicylic acid the odour still remains entirely unchanged. There is really no apparent reason why salicylic acid should possess deodorising properties, since such action can manifest itself in three different ways, namely: (1) by a destruction of the volatile products of the decaying substance, as, for instance, through the action of potassium permanganate, chlorinated lime and sulphurous acid; (2) by absorption, as with charcoal and in less degree by various other porous materials, to which also belong bodies producing precipitates in albuminous fluids; (3) by concealing the putrid odour, as with carbolic acid. Salicylic acid is not possessed of strong chemical affinities, neither does it produce precipitates, nor has it an inherent odour. The action of salicylic acid does not originate in a splitting up into carbolic and carbonic acids, as Kolbe supposed. The inadmissibility of that presumption is apparent from the fact that salicylic acid acts in weaker concentration than carbolic acid. Furthermore, salicylic acid may be recovered from putrid mixtures by means of ether, but carbolic acid is not traceable under the same conditions. Benzoic acid is a much more powerful antiseptic than salicylic acid. Raw meat chopped up fine or in larger pieces, when placed into concentrated solution of benzoic acid, remained perfectly fresh during a period of three months, the liquid remaining perfectly clear and retaining the odour of benzoic acid. The preservation was apparently absolute for any period. There is no difference between the effectiveness of natural and artificial benzoic acid.

Kolbe had stated, among numerous other myths about salicylic acid, that it is a much superior antiseptic to benzoic acid. The spirit of pecuniary enterprise is getting a fast hold upon the German chemists. Every new wrinkle is twisted into proportions of wonderful importance, and directly a factory is started, by means of which, and elaborate puffs, the general market is flooded with a worthless, or nearly worthless, substance. About the time the enthused multitude returns to sober second thought, the great scientist is enabled to retire from business to the more secluded pursuits of pure science, with a handsome gain. Kolbe's notorious pamphlet ridiculing the new notation and nomenclature simply because it was of French origin, and because Wurtz, in excessive eulogism, pronounced chemistry a French creation, founded by Lavoisier, is a pretty sample of what can be achieved on the field of pure science.

SWEDENBORG AS A CHEMIST.

IN a former article we gave a brief sketch of Swedenborg's theory of the universe and of the constitution of matter. Our readers may be interested in some further particulars of the ingenious manner in which he brought his ideas to bear in relation to chemical facts and theories. According to the views held by Swedenborg the particle of water is built up in this way: The natural point constitutes the beginning of all things in the same way that the geometrical point constitutes the beginning of geometry, and is thus a medium between the infinite and the finite. This natural point is described as being produced immediately from the infinite, its exact nature being scarcely conceivable; it consists, however, of pure and total motion, and analogy might lead one to compare it with a spiral force. Unfortunately for this theory, it happens that in all arguments as to the origin of matter it is precisely this medium between the infinite and finite, "this natural point," which constitutes the point in dispute. We do not see that its comparison to a spiral force gets over the difficulty. The next steps also depend entirely on the imagination. One point is held in equilibrium by another, and hence we have a species of concrete motion, or a motion which is local and gyratory, and thus distinguished from the all-pervading motion of the infinite; at least, this is the way we understand the author. This complex motion is termed an "active finite," and its complexity is increased by a second process of development, whereby the first active finites are held in mutual equilibrium, and a second finite is produced, and so on up to the fifth. In Swedenborg's view the particle of water is produced by a further development, wherein the sixth step is reached, and its character may be illustrated by the following diagram:—

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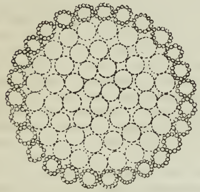
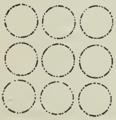
* Contributed to the *Tennessee Pharmacal Gazette.*

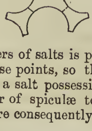


It will be seen that the particle of water is round, and that the sphericity is the natural outcome of the theory of its development. The individual particles of water are held to be arranged in the fluid quadrilateral pyramidal position, wherein each particle is separated from the other by the penetrating and dispersive power of heat, thus:—



In the deepest parts of the sea, where the solar heat does not penetrate, this perfectly fluid position of the particles cannot be maintained, and they accordingly assume a fixed quadrilateral pyramidal position, easily imagined by bringing into close contact four of the above circles, and imposing another circle on the centre to cover the space intervening.

The particles of water being thus arranged, an increase in pressure results in the breaking up of some of the aqueous particles, of which the component parts go to fill up the cavities and spaces of the remaining, intact, particles of water. According to Swedenborg, this disintegration or decomposition gives rise to the salts and metals, and the character of the new substances produced depends on the shape of the interstices. Thus, for instance, salt owes its acidity to the spiculæ which surround a body formed by such a process of moulding within the cavities formed by the juxtaposition of spheres. The shape of the particle of common salt, according to this theory, consists of one cube and several triangles: to be in perfection, it ought to consist of one cubical body with eight triangles or points, thus:—



Variety in the characters of salts is produced by the breaking off of one or more of these points, so that the less number of spiculæ will give rise to a salt possessing less acidity, because there is a smaller number of spiculæ to produce acidity. The spiculæ of these bodies are consequently the acids, and the body without any points would be without taste or acidity, and would constitute some kind of earth. When heat is applied to a salt an acid is supposed to be produced by the volatilisation of the points, while the stoma remains behind and forms the earth. The author does not explain why the "points" are volatile, and not the "body," which we should expect to be equally so, seeing that it is supposed to have been produced contemporaneously with the "points" by the disintegration of like particles of water.

The different kinds of acids are held to be produced by the conjunction in various manners of one or more of the acid spiculæ, which is the simplest or first kind of acid. Nitre is supposed to consist of a central volume of subtle fiery matter around which are disposed the acid particles. Swedenborg's theories of oil, sal ammoniac, and lead are developed by a like method of reasoning without facts, and with a full flow of imagination, but we think the examples we have given will afford a sufficient illustration of the author's views.

Scientific Notes from Foreign Sources.

THE SEAT OF THE ALKALOIDS IN CINCHONA BARKS.

In a note presented to the *Société de Pharmacie*, M. P. Carles confirms the statement of Howard that quinine and cinchona predominate in the external parts of cinchona bark, in opposition to the assertion of Weddel, Karsten, and Wigand, that they are to be found principally in the liber, or, more correctly, in the cellular tissue occurring between the fibres of the liber.

IODOFORM PENCILS.

Iodoform in fine powder	10 grammes.
Powdered Gum Arabic	0·5 "
Mucilage	q. s.

Divide into 10 equal cylinders, 4 c.m. long; dry in the air.

These pencils are hard, resisting, and capable of being divided into pieces of any length; they should be preserved from light. They are used with advantage against superficial ulcerations of the uterus. They are introduced into the cavity and allowed to remain, being kept *in situ* by a plug of wadding.

THE DETECTION OF TARRY MATTERS IN COMMERCIAL AMMONIA.

By M. Kupferschlæger.*

The action of nitric acid on sulphate of aniline has been so often described that it may be considered well known; what is but little known respecting it is its capability of being employed for determining the purity of caustic ammonia. Many works on analytical chemistry state that the most certain method of discovering the presence of colourless tarry matters in ammonia consists in pouring an excess of the latter into a ferric solution, and leaving the mixture until the precipitate has subsided and left the supernatant liquid clear; then treating the liquid, after filtration, with ammonium sulphydrate. If a brown colour or black precipitate, due to ferrous sulphide, be produced, the ammonia contains tar products. This long and complicated process by no means necessarily indicates the nature of the impurities, however. We therefore prefer to obtain the colouration which nitric acid produces with the aniline and toluidine almost invariably present in ammonia obtained from gas liquor; the least trace of these bodies produces a red colouration. The *modus operandi* is as follows:—The ammonia is cautiously added to some cubic centimetres of a mixture of colourless nitric acid, with a fourth of its volume of water contained in a test-tube. If tarry matters be present the red colour appears at once, and becomes brown in proportion to the amount of impure ammonia added. Further, the mixture heats considerably, and exhales the odour of tar, especially if the addition of ammonia be stopped as soon as the action ceases to be energetic. The brown colour persists indefinitely.

Tarry ammonia does not completely precipitate metallic oxides, and should not be used for the preparation of certain reagents, notably the nitric molybdate of ammonia, to which it imparts a brown colour.

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* *Journ. de Pharm. et de Chimie*, August, 1875, p. 104, from the *Bulletin de la Société Chimique.*

SALICYLATE AND CARBOLATE OF QUININE.

In opposition to a statement by Schering, in the *Pharmaceutische Zeitung*, that salicylic acid forms with quinine a salt which is insoluble in water, soluble in alcohol, and not crystallisable, Julius Jobst, of Stuttgart, in a communication to the *Neues Rep. für Pharmacie*, says that an aqueous solution of quinine hydrochloride gives with ammonium salicylate (from Kolbe's salicylic acid) a caseous precipitate, which may be obtained from alcohol in beautifully formed prisms grouped compactly together. The same compound is obtained when an alcoholic solution of quinine is treated with a completely saturated alcoholic solution of salicylic acid, and the spirit allowed to evaporate slowly. Quinine salicylate is anhydrous; to Jobst's analysis it yielded the formula $C_{20}H_{24}N_2O_2, C_7H_6O_3$. To estimate the quinine, the salicylate was dissolved in a little water containing dilute hydrochloric acid, and treated with ammonia. The precipitate was collected in a filter, and the alkaloid dissolved in the ammoniacal filtrate recovered by means of ether. In two experiments 69·66 and 70·17 per cent. of quinine respectively were obtained, as against 70·12 per cent. required by the above formula. Quinine salicylate dissolves in 225 parts of water at 16°, in 20 parts of alcohol of 90 per cent., by volume at 13°, and in 120 parts of ether at 16°. Seeing that salicylate of quinine could be so easily crystallised from water, it occurred to Jobst that it might be used in place of the carbolate, which for some time has been in fair demand for medical purposes, though it has hitherto been met with in pharmacy only in a pulverulent form and of varying composition and properties. He finds, however, that the carbolate of quinine may be obtained in delicate needle-shaped crystals from water as well as from alcohol. Dried at 130° the carbolate on analysis yields numbers corresponding to the formula $C_{20}H_{24}N_2O_2, C_6H_6O$. It dissolves in 400 parts of water at 16°, in 80 parts of alcohol of 90 per cent., by volume, and in smaller proportion in ether. Assuming that the therapeutic properties of the two salts are similar, the preference should be given to the salicylate on account of its greater solubility, but in any case only the invariable crystallised form of carbolate of quinine should be employed in medicine.

CLARIFYING LIQUORS.

The following description of a powder for clarifying liquors and removing the fusel oil is given in *Dingler's Journal*. It is the invention of Franz Plattner, of Dittersdorf, in Bavaria. After the digestion of the proper ingredients for the manufacture of any given liquor with common potato whisky is finished, and a sufficient quantity of so-called farina sugar has been added, the liquor is decanted or racked off, and to every eight litres there are added one ounce of pure starch, one half-ounce of prepared albumen in an extremely fine powder, and one half-ounce of milk-sugar: the whole is well shaken several times and left standing for twenty-four hours. At the end of this time the liquor thus prepared is so clear that it requires no filtering, has a peculiar lustre, and is so free from every trace of fusel oil that it is superior in firmness and flavour to any imported from France and Holland.—*Wine Trade Review.*

QUANTITATIVE ESTIMATION OF VOLATILE OIL IN PLANTS.

The general method recommended by O. Osse* is to treat 5 grammes of the finely powdered substance with 25 c.c. of petroleum ether (boiling point not above 40° C), agitate for one hour, let it stand, then withdraw 1 c.c. of the fluid by a pipette, expose this in a tared beaker in a current of air until the smell of the ether is no longer perceived, and weigh; expel the volatile oil at 110° C., and again weigh. The difference of the two weighings indicates the quantity of volatile oil.

Five grammes of powdered savin leaves treated with 25 c.c. of petroleum ether left, on evaporation of 1 c.c. of the liquid, a residue weighing 0·0265 gramme. After heating to 110° C. this weighed only 0·0175 gramme—difference, 0 009. The total weight of volatile oil was therefore $25 \times 0{\cdot}009 = 0{\cdot}225$ gramme, or 4·5 per cent. The residue, 0·0175 was fatty oil and resin—8·75 per cent.

In those cases where the volatile oil is accompanied by much fixed oil a correction must be made, because a trifling increase in weight occurs on warming in the air. For not dried fatty oil a near approach to the truth may be made by deducting 0·09 per cent. from the weight found, and adding it to the weight of the volatile oil.

By this method the appended results were obtained from the parts of plants mentioned:—

	Volatile oil Per cent.	Resin or Fatty oil Per cent.
Buchu leaves	1·75	2·25
Bay berries	13 25	25·
Cascarilla bark	2·5	4·5
Star anise	13·	13·5
Cloves	24·75	1·75
Sweet flag root	3·9	·75
Worm seeds	2.25	3·

SPONTANEOUS DECOMPOSITION OF CHLOROFORM.

Chloroform when exposed to the action of light or heat, especially if it contains the smallest quantity of water, is liable to spontaneous decomposition, hydrochloric and formic acids being produced, a condition which renders it highly dangerous for medical or surgical uses. M. Jaillard* examines such chloroform as follows:—Shake a small quantity of the chloroform in a flask, with half its volume of distilled water, and add to the separated water nitrate of silver; should it give a white curdy precipitate insoluble in nitric acid, and soluble in ammonia, hydrochloric acid is undoubtedly present. Filter, to remove the chloride of silver, then boil, after having added more of the silver re-agent; should a black precipitate be produced, formic acid is present. To purify chloroform from these acids, it is necessary to wash carefully with a potash solution, and then to distil from chloride of calcium.

TRANSFORMATION OF BRUCINE INTO STRYCHNINE.

M. Sonnenschein † draws attention to a fact which may prove of great interest in toxicology, namely, the close relations of the different alkaloids existing in the same plant. A comparison made between the two alkaloids of *Strychnos nux vomica* shows that strychnine, $C^{42}H^{22}Az^2O^4$, contains but four equivalents of carbon, hydrogen, and oxygen, less than brucine, $C^{46}H^{26}Az^2O^5$; and by experiments M. Sonnenschein has discovered that, by oxidation, brucine may be transformed into strychnine, the excess of carbon, hydrogen, and oxygen being eliminated as carbonic acid and water. Nitric acid effects this change under the following conditions. Brucine is heated with four or five times its weight of nitric acid; this causes disengagement of carbonic acid and nitrous vapours. The red liquid is then concentrated on a water bath, mixed with an excess of potash, and the whole shaken with ether. The etherial liquid collected and evaporated leaves a brown mass containing, amongst divers colouring matters and yellow resin, an alkaloid which forms crystallisable salts with acids. The base thus prepared has the properties of strychnine, of which it furnishes all the salts and the characteristic reactions. The transformation may, according to M. Sonnenschein, be reversed. By keeping a mixture of strychnine and alkaline solution of potash, soda, or baryta for many months in tubes hermetically sealed, and immersed in a water bath, the strychnine is found to possess all the character of brucine. The results obtained by this author will probably be confirmed by further experiments.

ADULTERATION OF COPAIVA IN CAPSULES.‡

Capsules of balsam of copaiva were offered to a druggist at such an advantageous price that he was forced to suspect the purity of the article. On examination it was found that the enclosed fluid, although of good appearance, colour, and consistency, when evaporated at 110–120° C. left a residue which was clear whilst hot, and thick, oily and turbid when cold. When heated to 150° C. for an hour and cooled, its consistency was unaltered. Finally heated to over 200° C., vapours were evolved which were distinctly recognised as those of acrolein. The residue treated with alcohol gave a fluid insoluble in that liquid, which behaved as a fat oil, and seemed related to poppy oil. This fat oil formed 20 to 22 per cent. of the balsam. True copaiva treated as above gives a clear bright hard resin.

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* *Archiv. der Pharm.*, 1875, vii. p. 122

* *Journ. de Pharm. et de Chimie*, October, 1875, p. 305.

† *Berichte der Deutschen Chemischen Gesellschaft*, t. viii. p. 212.

‡ *Pharmaceutische Zeitung.*

THE CHEMIST AND DRUGGIST

☞ *The "CHEMISTS' AND DRUGGISTS' DIARY" for 1876 is now in course of preparation. Firms desiring to secure space therein for Advertisements will oblige by communicating with the Publisher at an early date. A copy of this Diary will be presented free to every subscriber to the Journal.*

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TAKE NOTICE that on the 30th July, 1875, a Perpetual Injunction was granted in the above cause by His Honour, the Master of the Rolls, restraining the Defendant from using the word "Worcestershire," or any word only colourably differing therefrom, in connection with any Sauce manufactured by him, and any Labels or Wrappers resembling those used by the Plaintiffs.

All persons are hereby cautioned not to sell as "Worcestershire" or "Worcester" Sauce, any Sauce other than that manufactured by Messrs. Lea & Perrins, Worcester, or to use any Labels or Wrappers resembling theirs.

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J. ALFRED WANKLYN, M.R.C.S., London,
Formerly Professor of Chemistry in the London Institution;
Joint Author of a Book on Water Analysis, and of the Ammonia Proces

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THE PROSPECTS OF PUBLIC ANALYSTS.

WE alluded last month to a paper on "The Sale of Food and Drugs Act," compiled by Messrs. G. W. Wigner and J. H. Scott, the secretaries of the Society of Public Analysts. This has since been published in pamphlet form, and we suppose is to be taken in some sort as indicating the views of the members of that association generally. At least, so far as we know, no one of them has made a protest against the spirit of this production, and, therefore, subject to correction, we will assume these pages to fairly represent the ideas of public analysts as a body. One or two extracts will perhaps be sufficient to show whether the estimate we have taken of this Society of Public Analysts from the first, namely, that it is a rapacious trade union, designed, under cover of anxiety for public welfare, to keep up the terror of consumers, and the resulting profit to analysts, is just or otherwise.

We ask our readers to mark the animus of the following paragraphs. They are *apropos* of the clause (14) which requires the purchaser of any article which he intends to submit to analysis to leave a sample with the tradesman if so desired. Says Mr. Wigner :—

> From an analyst's point of view the objections to this plan are very great, as two-thirds of every sample purchased he will never see at all, and if his analysis be disputed, and a second analysis, made on the inspector's or dealer's portion, contradicts his results, he will be more likely even than at present (and with better reason) to doubt if the separate portions have really formed part of the same sample.
>
> Inspectors, too, are not usually so expert at tying up parcels securely as are shopkeepers, and if the parcel is only clumsily secured the difficulty would not be great, and the temptation to a vendor who knew he had sold an impure article would be considerable, to substitute another sample of different quality.
>
> But, beyond this, there is the *possibility* of such a thing as collusion between an inspector and a shopkeeper, in which case the reputation of the analyst would be in considerable peril.
>
> Most strenuous efforts were made to obtain a modification of this clause during the time the bill was before Parliament, but without success. The feeling outside the chemical circle was universal that a dealer had a fair right to have a portion of any sample upon which he might be prosecuted left in his own custody, for the purpose of having an independent analysis made, and this is not a claim to be easily gainsaid.

The gross slanders cast upon tradesmen in these few paragraphs are as baseless as is the assumption that an analyst's certificate can scarcely be incorrect. In the last paragraph quoted the writer admits in so many words the justice of the dealer's claim to retain a portion of the sample about to be analysed, and he assures his friends that "most strenuous efforts were made" to defeat that claim and hinder that justice. According to him, nothing but fraud, collusion, substitution, forgery, is to be expected from shopkeepers, and he therefore very consistently refuses to recognise the right of fair trial for such vermin. Suspicion haunts only the guilty mind, or tradesmen might themselves with equal reason suggest fraud and collusion on the part of the analysts. They have not suggested this; and the clause in question has only been asked for and inserted in the Act as some protection against the gross blunders and reckless arrogance on the part of the analysts which have occasioned so much injustice in the working of the recent Act.

On another page Messrs. Wigner and Scott repeat the frequently stated objection to Somerset House laboratory as a court of reference, that "the standing and experience of the Inland Revenue chemists is altogether unknown." Mr. Wigner's office is situated in the very thick of the tea and tobacco trade warehouses: did he trouble to ask any of the principals of those businesses if they knew anything of the standing and experience of the Inland Revenue chemists? He might, too, have learned something on this point if he had consulted men engaged in the beer and spirit trades. In all these branches of commerce the standing and experience of the Inland Revenue chemists are very widely known and universally respected. An amount of analytical work is conducted at the Somerset House laboratory compared with which that of any private laboratory is insignificant. It is superintended by men of high reputation, and if in a long series of years of work, necessarily interfering with the commerce of great numbers of merchants and traders, it has avoided the notoriety which might easily have been gained by harassing and blundering, so much the more is it worthy of the confidence which has lately been bestowed on it, to the satisfaction of at least the majority of those who may have to submit their reputations to its decisions.

To oppose in any degree the pretensions or desires of the public analysts is equivalent, in Mr. Wigner's opinion, to an open declaration of favour towards adulteration and adulterators. For our part we regret exceedingly in the interests of pure trading the line which has been taken by the analysts in this controversy. It is they who have forced traders to adopt an attitude of defence. They wrecked the Act of 1872 by their inordinate desire to make the best of it for themselves, and they sacrificed the confidence of those who had to frame a new Act by their desperate and manifest efforts to turn every clause to their own benefit, regardless of the injustice which might be inflicted on others. There is but little real fraudulent adulteration in the country, and it is the interest as well as the wish of every honest tradesman that what there is should be stamped out. This might be done without much difficulty if the legislature could secure the services of a body of competent men intent rather on public benefit than on personal aggrandisement.

TECHNICAL SCIENCE.

The Yorkshire College of Science, although its professors have been at work since last April, was only formally inaugurated on the 6th inst., by the Duke of Devonshire. The proceedings included the opening ceremony, a luncheon, and a public meeting at night, and a large number of eminent men assembled on the occasion. Lord Frederick Cavendish, President of the College, Mr. W. E. Forster, M.P., the Marquis of Ripon, Mr. E. Baines, Sir John Lubbock, Dr. Playfair, and others were present. Some excellent speeches were made, and the College was fairly started on its course.

This work is a very great one, and one that is worth considering. There are two others in the provinces with which it somewhat corresponds—Owen's College at Manchester and the Newcastle College of Science. The first was founded by a bequest, and the second is an outpost of the University of Durham. The Leeds College, however, is remarkable from the fact that it is almost entirely the work of Yorkshiremen themselves, who have taken an intelligent view of the necessity of such an institution. Lord Frederick Cavendish and Dr. Heaton started the project, and it was at first resolved to form a fund of 60,000*l.* before entering on actual work. But they found they could not raise this sum, and they started their enterprise with but little more than 20,000*l.* in hand, and in a necessarily incomplete manner. "At this time," said Lord Frederick Cavendish, "they could count upon an income, apart from fees, of 600*l.*; and their expenditure, if they were to maintain the College in any degree of efficiency, could not be estimated at less than 2,000*l.* a year. It was a fundamental principle of the College that it was not meant for a mere charity. Many of those using it were not men wanting pecuniary assistance. They wanted able and intellectual instructors, and it was proposed, therefore, that they should pay fees in proportion to the value of the instruction they received. But, on the other hand, they did not wish to restrict its assistance to those who were thus able to pay. They wished that every poor youth in the county who felt that he had that which he ought to develop should be able to come there, and for that means they were providing scholarships."

Sixty thousand pounds seems a large sum to ask for such an apparently unreal benefit as the provision of scientific education; but sixty times sixty thousand will have to be spent if England is to keep her place as a manufacturing country among the nations of the earth. Mr. Forster recounted to his hearers some of the deeds which "uneducated England" had accomplished, and these should not be forgotten. But we have a different set of surroundings now; Anglo-Saxon energy has beaten all the world when physical strength, courage, and endurance were the qualities required: it will be melancholy if, when the struggle comes to be concentrated, as it now is more and more each year, in the domain of mental culture, we flag in our energy and allow ourselves to be outstripped by Germany, Holland, Belgium, Switzerland, Denmark, and America.

A work of this character does honour to the patriotism as well as to the foresight of its promoters, and if our British aristocracy wishes to keep its place in the respect of the nation it must more generally follow the example of such men as the

Duke of Devonshire and the Marquis of Ripon. Our titled lords are wealthy, have leisure, and are not unnaturally anxious to maintain the honour of England and of their own order. They will not for ever be permitted to cumber the ground with their mere useless presences, just on the strength of some old unearned title which society permits them to bear. Let them take work like this in hand with the vigour which their ancestors showed when they won the dignity of *duces*, leaders, or of *jarls*, strong men, and they will save the present system of society for perhaps another couple of generations.

PHARMACY IN IRELAND.

The first fight in the Irish Pharmaceutical Council is expected to come off at the next meeting, on November 3, when the fifteenth clause is set down for discussion. The question to be decided is whether Ireland shall have two grades of pharmaceutists, as in England, namely, chemists and druggists *and* pharmaceutical chemists, or whether it shall have pharmaceutical chemists only. The Act leaves the decision of this point optional with the council. If they decide on the two grades, the lower order will possess equal trading rights with the pharmaceutical chemists, but will not be eligible for election on the council. The post of apothecary to lunatic asylums is also to be open to pharmaceutical chemists, but not to chemists and druggists. It appears that the apothecaries on the council are generally in favour of the establishment of one grade only, of a high standard. Their object is simple enough; it is to limit as far as possible the admission of new men into the dispensing area, and thus to protect to some degree the established apothecaries. The druggists will probably advocate the two grades, and thus the councillors to whom the determination of the difficulty will really be relegated will be those quite disinterested in the matter—the physicians and scientific men on the board. We can hardly doubt that the decision will be for the two grades. To have one class of chemists only, who must pass an examination equal to our Major, will be to perpetuate in a degree the condition of Irish pharmacy which it was the object of this Act to rectify. All the districts of Ireland cannot be considered tempting enough to induce men with that higher qualification to supply the pharmaceutical needs of the locality. A second class of men, who might be up to a standard quite high enough to ensure practical safety is precisely what Ireland requires, and if this should be refused, the main object of the bill; will not have been attained. Why the decision of such a fundamental point should have been left open is one of those difficulties inscrutable to the non-legislative intellect.

The *Medical Press and Circular*, in its issue of the 6th inst., has reason to believe that the policy advocated by the apothecaries is warmly supported by the President of the Council. Our contemporary, regarding the matter from the point of view of the medical profession and of the public, remarks:—

> "An intimate knowledge of the position of apothecaries and druggists in country towns convinces us that the ground taken by the apothecary party is altogether untenable, and, if they should succeed in carrying their point, the simple influences of political economy will compel its abandonment, as they have broken down the policy of the Apothecaries' Company and called into existence the Irish Pharmaceutical Society.
>
> "In the great majority of the Irish towns and villages where a competent dispenser is now urgently wanted, both by the medical practitioners and the public, a pharmaceutical chemist educated to the level of the English society would be entirely out of place, and overweighted with expensive attainments for which there would be no scope in his restricted sphere. For such localities the society has a right to demand from the dispenser which it qualifies a thorough and reliable competency to make up medicines, but nothing more, and if its council commits the error of enforcing a higher degree, the result must be either that the Irish provincial towns will be left as at present, without proper dispensers, or that those who attempt to supply the demand will learn by experience that the trade which may be done in such places is no return for the trouble, time, and money invested in their license.
>
> "We must not be understood as advocating the creation of an insufficiently qualified class of dispensers; we plead only for the establishment of a grade analogous to the "minor" licenses of the English society, and we appeal to the experience which that society affords to prove that such a class cannot be done without, and that the ordinary requirements of the provincial towns are supplied by this grade, and not by the highly-trained pharmaceutical chemist. If the Irish council follow the lead of its English sister there need be no fear of letting loose upon the Irish public a mob of half-educated compounders. A reference to the pages of The Chemist and Druggist of the current month, in which will be found the details of the "minor" examination, will satisfy anyone that the man who can answer it may be unhesitatingly trusted to undertake the sale of poisons and the compounding of prescriptions."

MR. EKIN'S ADDRESS TO PHARMACEUTICAL STUDENTS.

From the first sentence in Mr. Ekin's address we learn that recently he was himself studying *in order to pass his examinations*. A few years ago we should have noticed nothing very criminal in this confession, but during recent times Professor Attfield, Mr. Giles, and other pharmaceutical orators, have opened our eyes to the wickedness of those youths who go to Bloomsbury Square to "prepare for examination." It is not for us to settle whether future students should follow Mr. Ekin's example or Mr. Giles' precepts; it is for those gentlemen themselves to harmonise their principles.

Passing this, however, the young men of pharmacy will be the better for hearing or reading this address. Mr. Ekin struck hard, albeit his blows were gloved in gentle phrases, at a scandal of our trade. Those young men—we think they are far fewer than Mr. Ekin seems to imagine—"who have formed an exaggerated and disproportionate estimate of their own position and consequence" need to be taught how little respect they gain by their "dyspeptic wails." The moderate requirements of our present examinations do not justify on the part of those who have fulfilled them the loud pretensions which sometimes secure a corner in our journals. Our calling is respectable and honourable, no doubt, but we only discredit it when we assume to belong to a far higher grade than ordinary trade. This is a summary of Mr. Ekin's remarks on the point, and we thank him for them. "All kinds of wood," says the Talmud, "burn silently, except thorns, which crackle and call out 'we too are wood.'"

THE WOLVERHAMPTON CHEMISTS' ASSOCIATION.

The committee of the Wolverhampton Chemists' Association have arranged for a series of classes for the winter months to be conducted in case enough students offer themselves. The following are the subjects and teachers:—

Latin and the subjects for the Preliminary Examination..	Rev. Edward Haste, B.A.
Pharmaceutical Chemistry	Mr. W. L. Scott, F.C.S.
Botany and Materia Medica	Mr. Stokes Dewson.
Practical Pharmacy	Mr. F. J. Barrett, F.C.S.

Fee for Latin, 10*s.* for the course; for the other classes, 5*s.* each. All the classes, says the prospectus, "will be specially arranged for students preparing for the Pharmaceutical Society's examinations;" and, apparently unconscious of the unkind cut, the committee print at the head of their circular an extract from a letter by Professor Attfield earnestly deprecating "mere preparation for examination." "I am sure," says the Professor, "the members of your association will range themselves on the side of real education, and that your young men will recognise examination, not as an end in itself to be prepared for, but as a test of the soundness with which they have slowly and steadily, by years of honest endeavour, prepared themselves for the business of their life."

The opening sessional meeting of this association was fixed for yesterday, the 14th inst., when an Address to Students, by Mr. W. G. Brevitt, was announced.

SCHOOL OF PHARMACY PRIZES.

We record below the names of the students of the School of Pharmacy who gained the medals, certificates, and scholarships of last session:—

CHEMISTRY AND PHARMACY.

(*Prof. Redwood's Class.*)

Ten Months' Course, July, 1875.

Award	Marks	Name
Silver Medal..................	90	A. H. Naylor.
Certificates of Honour ...	89	Henry Ellis.
	88	George Green.
	86	Thomas Eminson.
	84	J. G. Atkinson.
	75	William Coles.
Certificates of Merit	70	J. A. Basker.
	70	T. H. B. Long.
	68	William Wyles.
	62	Thomas Slater.

Five Months' Course, February, 1875.

Award	Marks	Name
Bronze Medal	92	Henry Ellis.

July, 1875.

Award	Marks	Name
Bronze Medal	88	William Coles.

BOTANY AND MATERIA MEDICA.

(*Prof. Bentley's Class.*)

Ten Months' Course.

Award	Name
Silver Medal..................	Henry Ellis.
Certificates of Honour ...	Theophilus Hen. Beavan Long.
	Thomas Eminson.
	John George Atkinson.
	George Green.
Certificates of Merit	John Anthony Basker.
	William Coles.
	Ernest Cardwell.
	Wm. Arthur Harrison Naylor.
	Charles White.
	Bernard Dyer.
	William Wales Edward.
	William Wyles.

Five Months' Course.

first course.

Bronze Medal.—Alfred Wright.

second course.

Bronze Medal.—Thomas Eminson.

PRACTICAL CHEMISTRY.

(*Prof. Attfield's Class.*)

Award	Marks	Name
Silver Medal	84	George Green.
Bronze Medals	78	Wm. Arthur H. Naylor.
	76	Thomas Slater.
Certificate of Honour...	75	Henry Richard Arnold.
Certificates of Merit ...	70	John George Atkinson.
	65	Wm. Wales Edward.

ARSENIC EATERS.

At a scientific re-union recently held at Gratz, in Styria, Doctor Krapp presented two Styrian arsenic eaters, giving at the same time some curious details. "It is difficult," he said, "to give precise statistics as to the increase in the number of arsenic eaters in Styria, but I am convinced that there exist a great number of them. They are mostly stable boys, wood choppers and foresters; there are also some women. Many of these individuals commenced the practice at the age of seventeen or eighteen years, and have continued it to a very advanced one. They generally keep the fact a secret; consequently it is difficult to realise the actual development of the practice. They give as a reason for this habit that it protects them from other maladies, and also gives them an appearance of real health; that it is a remedy for difficult respiration, and also aids the digestion. A hunter who ate arsenic before my eyes assured me that he acquired courage little by little so as to continue the practice. There can be no doubt that the arsenic eaters enjoy seeming good health, and are very robust. I think it can only be very strong persons who could take up and continue this habit: some of them arrive at a great age. I saw at Zeirung a coal miner aged 70 years, who was vigorous and alert, and who I was told had followed arsenic eating more than forty years. Another case was that of a chamois hunter, aged 81 years, who for many years had made use of it. It results, from further observations that I have made, that either the white or yellow arsenic is made use of, and in a dry state. The dose is naturally very small at first, increasing gradually: the largest dose that I saw taken was 14 grammes. There are intervals between the doses of fifteen days, a week, and sometimes only two or three days."

After these stated facts it is impossible to doubt longer that there exist in our days arsenic eaters.

A NEW POISON—LABURNUM ROOT.

Fifty-eight boys in the Forest Gate Industrial School have lately served their generation by discovering the poisonous character of laburnum root. Finding roots of a laburnum tree which had been cut across, these fifty-eight adventurous and voracious young investigators commenced the mastication of whatever bits thereof they could get at, under the idea, apparently, that they had discovered a mine of "stick liquorice," or of some root which would prove a worthy substitute for that delicacy. Symptoms of narcotic poisoning soon ensued, varying in degree from mere sleepiness to complete stupor. The medical officer of the school, Dr. Vallance, of Stratford, had a stiff day's work in supplying emetics to the boys and in keeping them awake. Ultimately, however, all the boys recovered, and the doctor thinks the root probably possesses valuable therapeutic properties. The poison seems quite free from acridity. If the practice of medicine should be advanced by this experiment, we hope the fifty-eight will feel amply rewarded for what temporary inconvenience they may have suffered.

EARLY REFERENCE TO JABORANDI.

A curious reference to Jaborandi has been discovered by the *British Medical Journal* in the works of the Hon. Robert Boyle, published in London in 1772. In the third volume, page 155, of those works the following passage is quoted from Dr. Piso's "Travels in South America":—

> "I saw divers, as it were in an instant redeemed from death, who had been poisoned by the eating of venomous mushrooms and other unwholesome things, only by drinking a recent infusion of the root of *jaborand*, whilst myself and others of Galen's disciples blushed to see the ineffectual endeavours of all our alexipharmacy, treacles, and other antidotes; so that I afterwards suffered myself to be joined in consultation with these barbarous colleagues, not so much to be arbiters of the condition of our men by their pulse, as to gain their assistance and counsel in the above-mentioned way, viz., the prescribing of proper medicines."

IF THE PUBLIC ONLY KNEW.

Shall we dispense our medicines? asks the *British Medical Journal*, and without directly recommending that system, the editor hints that there are strong financial reasons for retaining the practice. He prints a letter on the subject from a practitioner, which certainly goes to show that charging for prescriptions is not always the best policy for the doctor. The gentleman writes:—

> "A patient subject to recurrent gout, who used to afford me an income of about 30*l.* a year, has, since I gave him a prescription, not been near me for three years. I meet him occasionally, and he salutes heartily sometimes with 'A famous prescription that of yours, doctor; it cost me only ten shillings, and I always have it made up when I feel the gout coming on, and it always cures me.' What is worse is, that he has given the same prescription to all his gouty friends, whom he would otherwise have recommended to me; and even the chemist makes it up now, and sells it as his 'famous gout pills and mixture.' Thus, for ten shillings, I have sold an income of, say 50*l.* a year; and I am not consoled by the reflection that my patient and his friends are really better off, for, though they are saving money, they are all, in all probability, abusing my alkaline colchicum mixture, and injuring their constitutions. But this warning they disregard, and, consequently, we are both probably worse off than we should have been if I had steadfastly refused to depart from the old ways."

What amuses one in reading this letter is the cool assumption of a vested interest in the maladies of the neighbourhood. "A. B. has chronic gout," says this worthy medico; "that's worth 30*l.* a year to me. C. D. has an incipient cancer; I can extract 20*l.* a year from her for five years;" and so forth. Evidently the idea of curing these patients never occurs to our cynical friend. That would indeed be killing the goose and cutting off the supply of golden eggs. No, no; sufferers from gout, cancer, consumption, and all the other ills which flesh is heir to, are mercies of the good God sent expressly for the benefit of medical practitioners. Let us accept these blessings with reverent thankfulness, and pray that our patients may long "endure, ever faithful, ever sure." But tell it not in Gath, publish it not in the streets of Askelon, or the Philistines, when they see through our little game, will most assuredly prefer to pay a physician for advice once, rather than suffer our eternal milking process.

DOLOMITE AND MAGNESITE.

Mr. Stoddart, in his paper on the Bristol Rocks at the Conference meeting last month, caused some astonishment by describing certain specimens of dolomite and magnesite which would not effervesce when sulphuric acid was applied. The subject is again referred to by Mr. H. O. Huskisson, who, writing to the *Pharmaceutical Journal*, expresses his belief that the anhydrous state of the mineral is the reason of the non-effervescence. Mr. Huskisson says he has worked on dolomite and magnesite some years—for the production of carbonic acid gas for the bicarbonating potash and soda, and can fully endorse Mr. Stoddart that they are not acted upon by sulphuric acid in any appreciable quantity in the cold, even when powdered; the slight action of sulphuric acid on powdered magnesite being due to the elevation of temperature caused by mixing the acid with water. He finds the best way to liberate the gas is to place a charge of magnesite, broken up in pieces about the size of walnuts, in the generator, add the sulphuric acid, and then heat the vessel to about the boiling point of water; in a few minutes the gauge glass will show a pressure of gas of 10 to 15 lbs. After the sulphuric acid is saturated, run the liquor off and add fresh acid. The liquor, sulphate of magnesium, may be purified by filtration and crystallisation.

Magnesite and dolomite are terms used in the trade to express the amount of carbonate of lime and magnesia present in the mineral. If over 50 per cent. of carbonate of magnesia, it is magnesite; if under that it is dolomite. The best magnesite comes from Athens, but it is very uncertain in its arrival, as it only pays to bring over as ballast; what is in the market now is Prussian.

A DECEPTIVE BEVERAGE.

It may perhaps startle many total abstainers to learn that one of their favourite beverages, ginger-beer, is really a fermented liquor, and contains alcohol in proportions varying from 2 to 4 or 5 per cent. Nevertheless, such, according to Dr. Bathurst Woodman, in the *Sanitary Record*, is the case. "I should be very sorry," writes that gentleman, "to diminish the sale of ginger-beer, which I regard as one of the best of our summer beverages, containing as it does, in almost all samples, either free citric or tartaric acid, or the almost equally beneficial bitartrate of potash. I have before me the receipts of several large makers, and take the first that comes to hand. It contains, besides ginger, tartaric and citric acids, 200 lbs. of sugar to 180 gallons of water. These ingredients are duly fermented, &c., and then bottled. Now, 200 lbs. of sugar (cane sugar) will produce in fermentation nearly 100 pints of alcohol; and, making all allowances for loss in yeast, by evaporation, in bottling, &c., it is quite plain that this liquor will contain about 4 per cent. of alcohol, and the result of actual experiment shows the same. The other receipts only differ slightly in the amount of the saccharine substance, as regards the water, or the kind of sugar present, or the acid employed. This percentage of alcohol is, of course, about half the strength of most of the malt liquors in common use by the middle classes of this country, but about equal to many of the cheaper ales, and to much of the beer drunk in Germany and other parts of the Continent."

THE AMERICAN TARIFF.

From some pamphlets before us we observe that a somewhat lively discussion has occurred in America on the subject of tariff revision between two very eminent representatives of the drug and chemical industries in the United States. The combatants are on the one side Mr. Alexander H. Jones, of the firm of Powers & Weightman, Philadelphia, and on the other, Mr. Daniel C. Robbins, of the firm of McKesson & Robbins, New York.

We are not in possession of the entire discussion, and if we were our imperfect acquaintance with the peculiarities of American politics would prevent us from following the arguments quite intelligently. But we gather that Mr. Jones, in the interests of Pennsylvania, which is supposed to derive its chief wealth from manufacturing interests, desires to maintain a strictly protective tariff, while Mr. Robbins is anxious to develop American commerce by the adoption of a system more similar to the British than now prevails. At this moment we confine ourselves to one or two striking extracts from Mr. Robbins' pamphlet, which should at least form food for thought to wise Americans. He says:—

> A few years since, our commercial marine was superior to that of Great Britain; to-day, the British commercial marine exceeds that of all nations combined:—

	Dollars
We imported in 1874	642,000,000
Great Britain imported in 1874	1,819,000,000
Our exports in 1874 were	575,000,000
British exports in 1874 were	1,524,000,000

> Can these figures be equalised or reversed? They should be, they can be, if we are as careful as Great Britain is in the application of a wise policy suited to our needs. We cannot copy the errors she has discarded and expect success.

Mr. Robbins concludes his last pamphlet by severely commenting on an extract which he gives from Mr. Jones' remarks: The extract runs thus:—

> For myself, I believe in giving employment to our own people. "I do think," with Mr. Morrill, "American capital, American industry, and American genius, entitled to the favour of the Government." "I prefer a Pennsylvanian forge to a Birmingham one; I prefer the sugar of Louisiana to that of Brazil or Cuba; I prefer an American clipper to any British or Dutch bottoms; and I prefer—who does not?—'five miles of Lowell factory girls' to forty leagues of Yorkshiremen or any number of Flanders mares. I am for ruling America for the benefit, first, of Americans, and for the 'rest of mankind' afterwards."

To which Mr. Robbins rejoins:—

> I hide my face in shame, for I cannot contemplate such an avowal as falling from senatorial lips—a chosen representative of the nation—without a shudder for the atrocity of the declaration; the audacity of the avowal appals as the shriek of the lost.
>
> Your chosen quotation is avowed rebellion against God and man. It is a disgrace, wherever uttered, except for the purpose of rebuke; rebuke for the utterance, the vulgarity, the barbarity, not for any man deluded or wayward, simple or wise, or weak, all born to lapse as the buffeted child, in the mother's embrace to rest—to rest in infinite compassion.
>
> Gentlemen of the Philadelphia Drug Exchange, the one-hundredth anniversary of our Declaration of Independence, which was made in 1776, will soon be held in your city, as it should be, and we have invited foreign nations to aid us in the display at the centennial. I take note that already the inconsistency of inviting a manufacturer to display his goods in prohibited markets is being discussed in high quarters, by men like M. Chevalier in France, and noble John Bright in England, our staunch friends in the past. Is it proposed to flaunt in the faces of men like these, as well as our guests, the opinions of the Senator from Vermont? Please inform and oblige.

THE NATURAL MINERAL WATERS OF FRANCE.

The French territory is perhaps the most prolific on the face of the globe in natural mineral water springs, as is evidenced by the fact that something over five hundred different sources are recorded in the official works as existing, few only of these, however, it is needless to say, having acquired any great local or general reputation.

Everyone has heard of the well-advertised "Vichy," of the Eaux Bonnes, Cauterets, Contrexville, St. Galmier, Marcols, Plombières, Enghien, and Vals; but of the 490 odd others no one has more than a vague idea. The greater number of these mineral springs exist in the Pyrenees chain of mountains, and the numerous bathing establishments with which that part of France is dotted, and the extensive patronage by both *soi-disant* and real invalids which they enjoy, supply proof of the *penchant* of Frenchmen for these springs.

Vichy, it is estimated, supplies its home and export demand to the extent of three million of bottles annually. St. Galmier, which is a very cheap water, retailing at 4*d.* a bottle, is reported to send out five millions of bottles; while Marcols, Vals, Bonnes, and others, range in annual delivery from one to two millions of bottles each.

Several of the best known of the French mineral waters have already an established footing in England and abroad, which leads to a continually developing demand.

ATTFIELD'S CHEMISTRY—NEW EDITION.

Within the next few days a new edition—the sixth—of Professor Attfield's "Chemistry" will make its appearance, and we take advantage of the opportunity we have had of examining an advance copy by commenting briefly on this work in its newest phase.

The most striking novelty of the new edition is the introduction of a number of illustrations of apparatus and manipulation. There are now 67 woodcuts and 20 lithographic plates contained in the work. It is unnecessary for us to say more of these than that they are very carefully drawn and clearly printed. It is obvious that their addition at least doubles the value of the manual to students who are struggling into a practical acquaintance with the science of chemistry without the aid of a living and always present teacher. It is, in fact, next to impossible to present instructions to a novice as to manipulation or explanations of apparatus without the aid of engravings.

Nothing is so important in an elementary work on science, chemical science especially, as to give sound and clear notions of the principles which lie at the base of the facts, and by which the latter are grouped and generalised. There is, however, a peculiar difficulty in teaching these principles as regards chemistry. It has been found impossible to give an adequate conception of the working of chemical laws except by using the "atomic theory." This theory assumes the existence of "atoms"; of pieces of matter which are indivisible; assumes the impossibility of dividing in imagination a certain conceivable area; assumes, in short, a limit to the infinite. All of which, as Euclid would have said, is absurd. The difficulty we have alluded to, therefore, consists in employing this theory in order to convey into the minds of young students the conceptions which it is necessary should be received, without at the same time implanting a belief, which must needs be transitory, of the material truth of the atomic theory itself. The section of Professor Attfield's work on the general principles of chemical philosophy is really a masterpiece of lucidity in the treatment of this all-important but very complicated subject. Of course it demands from the student very close attention, and a certain degree of intelligence. But with these, and with a dogged resolution not to go farther in his studies until he feels himself perfectly clear as to the foundation, we can assure him he has here the materials for a thoroughly satisfactory start; but let him most religiously satisfy himself that he comprehends these chemical principles, or he will never get any other than a confused and halting notion of this splendid science.

In this edition the author has again gone over the section on chemical philosophy, and by a judicious "touching up" has rendered the section even more clear than it was before. We are bound to express a very warm admiration of this chapter, or rather series of chapters.

In another place (page 58) Professor Attfield has introduced some paragraphs with the object of explaining to the utmost the meaning of diagrams and equations in the representation of chemical reactions. These seem very sufficient; but only those practically engaged in teaching are aware of the slowness with which a comprehension of these symbolic representations filters into minds not previously disciplined by mathematical training. To represent a reaction even more graphically to a young mind, we venture to suggest the possibility of exhibiting it in colours, picturing the different elements of a compound about to be decomposed by different colours, and showing the result by the interchange of these colours. We are not aware that this system has ever been tried.

We have on previous occasions more completely analysed this work; it is therefore unnecessary for us to repeat that process now. It is now a massive volume of over 750 pages; it is written from beginning to end in that clear, definite, crystalline style which Professor Attfield has so successfully cultivated; and while the aim of it is ever to teach "Chemistry," this is done by a constant use of illustrations familiar to the pharmaceutist, which give it an especial value to those students of our trade to whom an acquaintance with science is now an essential and should be a delight.

The following "advice to students" is added prominently to the preface in this edition:—

> It is unnecessary to advise you to avoid studying merely by way of "preparation for examination." You will not so mistake the means for the end. You are studying to fit yourself for your position in the world. Work diligently, study thoughtfully and deliberately, above all be thorough; otherwise your knowledge will be transient, and will be unaccompanied by that enlightenment of the understanding, that mental training, mental discipline, and general elevation of the intellect which constitute, in a word, education. When you are thus educated, you will with ease and pleasure pass any examination in the knowledge you have thus acquired.
>
> All authorities on education, whether statesmen, teachers, or examiners, regard "examination," even by the most highly skilled "board," with ample time at its disposal and a wide area from which to select questions, as but a partial test of knowledge, and an extremely imperfect test of education. It is the best, however, that has been devised, and is especially useful when, following instead of leading education, it is restricted to the subjects of a well-defined, earnestly followed, compulsory curriculum of study.
>
> Students! as men of honour, take care that any inefficiencies inseparable from "examination" are abundantly compensated by the extent and precision of your knowledge, and by the soundness and thoroughness of your whole education.

FRENCH FRAGMENTS.

A NEW ELEMENT —GALLIUM.

In the *séance* of the French Academy of Science, on the 27th ult., M. Wurtz presented, in the name of M. de Boisbaudran, an important communication detailing the chemical and spectroscopic characteristics of a new metal—gallium—discovered on August 27, in the present year, in the mine of Pierrefite, valley of Argelès (Pyrénées).

M. Boisbaudran says in his communication : "The day before yesterday, Friday, August 27, 1875, I found indications of the probable existence of a new elementary substance in prosecuting a chemical examination of a blended ore derived from the mine of Pierrefite."

The extremely small quantity of the substance at command did not enable M. Boisbaudran to isolate it entirely from the accompanying zinc. The few drops of chloride of zinc in which the new substance was contained yielded under the action of the electric spark a spectral ray of violet colour. He, therefore, believes he has discovered another element.

Spectrum analysis has already aided in the discovery of several new metals, such as coesium, rubidium, thallium, &c. This new metal, gallium, is not likely, at present at least, to prove more than an addition to an extremely rare category.

ILLUMINATING GAS FROM CORK.

Late experiments in a cork factory at Bordeaux resulted favourably for the manufacture of gas from cork shavings and refuse, and in consequence the town of Nérac, near Bordeaux, has ordered the erection of works for producing gas from this material.

It is stated that the flame is much whiter and brighter than that produced by coal gas, and also that its density is very much greater.

PUMPKIN SEEDS (VS. TAENIA).

These humble grains were in olden time employed in warring against the solitary invader: then they went into disuse and oblivion. Lately M. Heckel has brought them into vogue with excellent results in the form of a *pâte* mixed with sugar. When taken the dose is 17 grammes, preceded as well as succeeded at three hours interval by a dose of castor oil: the results are said to be decisively satisfactory.

ELIXIR OF LIFE.

A French chemist has discovered the elixir of life. It is sour buttermilk. The lactic acid in this dissolves the products of organic combustion, which, as ossification and calcareous degeneration, are the main agents in the death of the aged.

THE OIL TREE OF CHINA.

Attempts are being made to acclimate this plant in France, and with hopes of success.

The oil is extracted from the fruit, which yield one-third of their weight of a thick, odourless, tasteless, and colourless oil, which at a reduced temperature becomes a thick viscid substance, possessing drying properties of the most pronounced type. As a *siccatif*, it surpasses any known oil, and, consequently, is expected to be of peculiar value in many of the industrial arts.

PHOTOGRAPHIC PROGRESS.

At the French Institute on the ground floor of the Palais Mazarin is fitted up the photographic department connected with the Fine Art Bureau of the government.

Recently a very important improvement for rendering proofs inalterable has been discovered at this *atelier*. By means of ordinary printer's ink passed over an impression by a roller, the design appears with all its shadows and a white background, resembling at a little distance an engraving. The blue and yellow tints of the ordinary photograph do not appear. We are not at present acquainted with the details of this important improvement in photographic art, which is due to the intelligent ingenuity of M. Félix Ravisson, Member of the Institute, who has charge of these processes for the State. It is intended to reproduce all the works of art of the Louvre by this non-fading process as fast as possible.

CORK DUST.

Bourgeois, of Paris, suggests the application of finely-pulverised cork, or cork dust, to various purposes, those of the toilette more especially, for which rice and wood powders have hitherto been used.

NEW PERFUME.

The local committee in Tahiti have sent to the Colonial Museum at Paris the odoriferous bark of a yet undetermined plant, known over the Society and Pamotons group by the name of Maire. It can be advantageously employed in the preparation of the perfume known as "new-mown hay."

A NEW ESTIMATE OF VICHY WATERS.

According to a note read to the Académie des Sciences, from Professor Claude Bernard, the waters of Vichy are most useful to persons who have little or nothing the matter with them. He says that, as the result of his examination of numerous clinical observations, as well as of his experiments on animals, if the person taking these waters is in a normal physiological condition, or at least if he is not the subject of any organic lesion, their action is strengthening, the globules of the blood being increased. But they induce anæmia, and notably impoverish the blood, when the person taking them is in more or less of a pathological condition, and especially if he is the subject of an organic lesion of any kind whatever.

Monsieur Desportes has recently bequeathed to the French Academy of Medicine 1,200*l.* sterling, to found an annual prize for the author of the best therapeutical work of the year.

We observe in *Le Monde Pharmaceutique* a notice of the death, at Vernon, of M. Briet, the inventor of syphons for aërated waters, now employed almost exclusively in France, and very largely in this country. Our contemporary says, "Anyone whose memory can reach back thirty years or so will remember how sadly something was wanted to manage seltzer and lemonade. Either the impatient liquid escaped before reaching the table, or else on arrival it burst forth through the hands of the bearer, refreshing only the ceiling and the table cloth. This would cause laughter, but the entertainment was not repeated. M. Briet, who was both practical and reflective, set himself to tame the petulant beverage, in which he succeeded after many experiments." It is satisfactory to add that M. Briet derived a handsome fortune from his invention.

The laboratory of a pharmacien named Martin, at Allanche, suffered a singular accident lately, which may serve as a caution to others. In that laboratory was a tin containing about 500 grammes of phosphorus. This was kept usually on the floor, but an apprentice had placed it on an upper shelf. Somehow, either by evaporation or by accident, this tin lost all its water, and, consequently, one fine day the phosphorus took fire. The laboratory and the pharmacy were soon filled with suffocating vapours, the cause of which was not traced until afterwards. Engines arrived and pumped into the laboratory, and the fire was at length overcome. It is remarked that had the accident occurred in the night, Mr. Martin must have been suffocated, his sleeping apartment being just over the laboratory.

The *Repertoire de Pharmacie* of the 10th inst., in describing the functions of the General Medical Council of the United Kingdom, makes one error which it is important to correct. The duties of this Council, it tells its readers, are to keep the register of medical practitioners and to see that the examinations of the various licensing bodies are kept up to the proper standard ; also *to overlook and control the pharmaceutists.* We should like our French friends to know that the pharmaceutists of Great Britain are perfectly free from any surveillance or control on the part of the Medical Council. This body has no concern whatever with pharmacy. The Medical Department of the Privy Council has the power to see that the Pharmacy Act is enforced, but that body is entirely distinct from the Medical Council.

Medical Gleanings.

The *Australian Medical Journal* gives the translation of a native diploma presented before the Medical Board of Melbourne last June, by a Chinese practitioner who desired to be registered in accordance with the legal requirements of the colony. It ran thus:—"At a meeting of the college. We, the doctors of this district (Chung Loo), hereby certify that we know you, Quong Hung San San Neng Yong Ah Kan Oo, No. 42, Yee Quock Ping, and we hereby testify that we have correctly examined you, and find that you have studied for six years, and understand the seven external and eight internal pulses, together with the liver, heart, lungs, kidney, and stomach, and bladder, spleen, pericardium, big and small bowels and their pulses; that you are thoroughly conversant with all the pulses in all parts of the body, and that you have studied medicine for four years. We hereby certify that, having passed your examination satisfactorily, you are entitled to practise as a doctor in every district; and we hereby bear witness to your general and thorough knowledge of medicine and the pulses." The signatures and date followed. The Board refused Mr. Ping's application, though their reasons are not stated in the journal which records the story. We can hardly think they knew anything to the detriment of Chung Loo College, and we imagine the true ground of their somewhat tyrannical exercise of power must have been the trouble which would be incurred in registering and corresponding with a gentleman so abundantly supplied with Christian names. Mr. Ping, however, through counsel, applied to the Supreme Court for a *mandamus* a few weeks later. The case was fully argued, but again Britannia's offspring triumphed. The Chinese residents in the city, however, were not then satisfied, and it was reported that a subscription was being promoted among them to defray the cost of an appeal to the Privy Council.

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The Prince of Wales will miss some of the enjoyments of Indian life through travelling in the winter. This is how Dr. Hogg found it in July, according to a letter from him to the *Medical Press*:—Boils and prickly heat, just now universal, grievously irritate mind and body, affecting the new-born infant, the pregnant woman, the last-joined recruit, the old soldier; and now is the time to try Mark Tapley, to grin and look pleasant with boils on the buttock, two or three about the legs, several about the chest, whilst the extremities are taken care of by the aforesaid prickly heat, and some curse the gout, serpigo, and the rheum. In the hot weather people's tempers are rendered touchy to a degree—everything goes wrong, everybody hates the sight of his neighbour, hates work, bills, correspondence, and specially study. Patients are very fretful; the women wear the doctor out, forgetting that he has the same sufferings—peradventure a sickly wife and a delicate family of nervous noisy children, who are always naughty, eternally whining, because it is their nature to be so in hot weather. As some writer remarks, if the realms of bliss of futurity admit infants in arms, let us go elsewhere.

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Dr. Hughes Bennett, Professor of Physiology in the University of Edinburgh, died lately at the age of sixty-three. To him chiefly is due the introduction into medical practice of cod-liver oil in the treatment of phthisis.

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Dr. Henry Bennet, the well-known gynecologist, has recently retired from London practice. He intends to settle at Mentone, and will practise medicine only during the winter, leaving his summers free for relaxation. Sixteen years ago Dr. Henry Bennet was in a rapid consumption, and his prospects of life seemed hopeless. He had then just established his reputation, and was making an income of something like 4,000*l*. a year, chiefly in consultive practice. He relinquished it all, and practised with skill and intelligence on himself such hygienic and climatic treatment as he would have prescribed for a patient. He completely cured himself, and his record of treatment has been one of the most valuable landmarks in the history of the medical struggle with consumption.

A correspondent of the *British Medical Journal* rescues from an old volume published more than fifty years ago the following smart interchange of compliments between two members of the medical profession. At the time that Dr. Cheyne and Dr. Winter were the two principal physicians at Bath they adopted very opposite modes of practice; but the former gave some credence to his prescription of milk-diet by making it the principal article of his own sustenance. On this occasion, Winter wrote him the following stanzas:—

Tell me from whom, fat-headed Scot,
  Thou didst thy system learn:
From Hippocrates thou hast it not,
  Nor Celsus, nor Pitcairn.
Suppose we own that milk is good,
  And say the same of grass—
The one for babes and calves is food,
  The other for an ass.
Doctor, one new prescription try
  (A friend's advice forgive),
Eat grass, reduce thyself, and die,
  Thy patients then may live.

Dr. Cheyne's answer:—

My system, Doctor, 's all my own,
  No teacher I pretend;
My blunders hurt myself alone,
  But yours your dearest friend.
Were you to milk and straw confined,
  Thrice happy might you be;
Perhaps you might regain your mind,
  And from your wit get free.
I can't your kind prescription try,
  But heartily forgive:
'Tis natural you should bid me die
  That you yourself may live.

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The *Students' Journal* quotes from the *Galveston News* (U.S.) an amusing account of a "learned doctor" who was brought forward as a witness in a recent trial:—A man was accused of having administered poison to one Mary Ann Tolden, and Dr. Taylor, having attended the patient, was called upon for evidence. The doctor, says our authority, was a small-sized individual, slip-shod, walked with a cane, had a small head scant of wool, solferino eyes, and the look of one who had an eye to the main chance.

The doctor hobbled up to the stand, and proceeded to answer the questions put to him by the court, thusly:—

By the Court: What is your name?

Dr. Taylor: Dr. Thomas Taylor.

Court: What is your trade? What do you do for a living?

Dr. Taylor: I'se a doctor—er fissian (physician).

Court: Under what school of medicine do you study?

Dr. Taylor: Hey! Didn't study at all. Cum into de wurl a doctor. Was borned a doctor. You see, boss, I cures people wid dis yere right han', dis yere right han'. I jes puts it on 'em, and does a little summen to 'em, and dey gets well; I does, I was worth more ter my old master den all the other niggers he had; I'se a doctor, I is. (Here the witness surveyed the audience with a great deal of gravity and importance, and hitched up his pants, and turned again to the court.)

Court: Do you know Mary Ann Tolden? If you do, state what was her condition when you saw her on Sunday or Monday last.

Dr. Taylor: I knows her. Well, boss, you know last Sunday or Monday, I disremember which, I was called in 'fessionally to see de young lady. I found her in 'vulsions 'plaining of things wurrien 'bout her heart. Says I, "Mary Ann, what's de matter?" Says she, "Doctor, I feel things a wurkin round my heart." I put dis yere right han' on her, and she got still. I saw her sorter swelled out and felt things a wurkin round in dere, and I knowed she mus' have sum varmint in dere. So I give a tablespoonful of fresh milk, and den I took a speckled chicken—a real natural chicken—and cut it open and put it on her right side, just over whar the heart beats. I kep' it dere for some time, may be half hour. De treatment fetched 'em out; cured her up.

Court: You have a license to practise medicine?

Dr. Taylor: Yes, sir! (Here witness produced a city license, issued January 1, 1875, signed by Mayor Hurley, authorising him to carry on the occupation of a physician from January 1, 1875, to July 1, 1875.)

Court: Can you read?

Dr. Taylor: No, sir, I don't need ter. I'se de sebenth son. My nollige was born wid me.

Court: Have you a license from the County Board of Physicians?

Dr. Taylor: No, sir! What for I want to go to dem for? I'se a doctor; I is. I cures people wid my han'—my right han'. I don't give no doctors' stuff. (Here witness looked disgusted, as though to insinuate that to go before the County Board were a great insult.)

Court: Do you get pay for your visits and doctoring?

Dr. Taylor: Pay! Pay! In course I does. I'se no fool, I ain't. I'm a doctor, I'se. 'Course I gets pay. I charges 'em 25 dollars for every case, and I make 'em pay me; I does. I'se a doctor, I is.

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The introductory addresses at the medical schools scarcely rose above the average this year. We append a brief *résumé* of some of these:—

At St. Thomas's Mr. Joseph Frank Payne delivered an address elaborately setting out the methods of acquiring a true scientific knowledge of medicine. We quote from his lecture some original remarks on "scientific text books." These, he said, "may be like books of travel, intended to describe what the reader has not seen and is never likely to see; or, again, they may be like maps, which give a general outline of a number of objects, too many or too large to be easily embraced in one field of view; or, finally they may be like handbooks for travellers, which draw attention to what the reader can observe for himself. Now, there can be no question about the utility of all these classes of books. No one can see for himself a tenth part, or even, in some sciences, a thousandth part, of the facts upon which any science rests. Hence a great part of our knowledge must always rest upon testimony. This is unavoidable; but still we should endeavour to test such books by our own experience whenever we are able, and at least to gain a direct knowledge of a sufficient number of facts to form a sample of the rest. Without these correctives, feeding on other people's experience—or, as Professor Huxley tersely put it, 'getting up hearsay'—has a very demoralising effect on the mind. The examination system has much to answer for in requiring so much of it. Original and inventive genius instinctively revolts from second-hand learning. Faraday used to say that he could never understand a description of anything—he required to see and handle it. I remember a very able and original chemist, now dead, who declared—and I believe truly—that he never read a book in chemistry till he had to lecture to students; and, indeed, to the last he was quite incapable of getting up a text-book, and would have cut, I am afraid, a very poor figure in an examination.

"Of all kinds of books, doubtless the most valuable, especially for beginners, are those of the last class to which I alluded—books which may be compared to the guide-books for travellers; useless without the objects before you. It seems a paradox that such books should be needed; but they certainly are so. The most refined observation would not enable us to see a tenth part of what there is to see in a single bone unless the anatomists of former generations had been over the ground before, and marked the salient points. Remember the metaphor of guide-books. I once read, by a French writer, the remark that the chief occupation of English travellers on the Continent appeared to be 'to verify the assertions of their Murray.' You will do well, gentlemen, to spend a large proportion of your time in verifying the assertions of your text-books."

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At Charing Cross Mr. Fairlie Clarke, assistant surgeon, addressed students in a general manner, urging lofty principles of duty and faithfulness to the work set before them.

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At the London Hospital Dr. Bathurst Woodman delivered the introductory address. He discussed vivisection, and went on to point out the difficulties of mastering the science of modern medicine, adding, however, that if the difficulties wer increased so were the facilities for learning. But, he said, the great aim of the art is to cure or at least to relieve. Lamartin had eloquently said:—"Le médecin guérit quelquefois, soulag souvent, console toujours." "Let their aim be to multiply the cures. Depend upon it the public will never tolerate us, or pay us fees merely to stand by the bedsides of those they love as scientific observers, or as a sort of Greek chorus; for although there are times when the highest wisdom is to hold our hand, lest we rudely put out the flickering flame of life, it far more often happens that we can do much to cure or relieve pain, if we only have the knowledge. But, to do so, we must learn all we can, and must be learning ever."

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At St. Mary's Dr. Randall, Professor of Hygiene, combated cremation, describing it as "a heathen and pagan custom, which could not be approved of in a Christian country; the present proposal of burning the dead in reverberatory furnaces or near gas-works is something more than disagreeable; it appears revolting and almost brutalising. This dismal annihilation taught by the pagans has in it something so unsuited to the wants of a Christian world, that it takes us back to the ages when those barbarous customs were in vogue; as unsuitable to us as to have our bodies exposed on the summits of the 'Towers of Silence,' there to be devoured by the ravenous birds of the air, or to be thrown into the sacred Ganges a prey to the rapacious reptiles."

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At the Durham College of Medicine Mr. H. E. Armstrong, Lecturer on Botany, took occasion to advocate the stipendiary system of payment to doctors. "According to the principle at present prevailing," he said, "the value of a medical man's services is not measured by the good he does, the evil he averts, or the anxiety and responsibility he incurs, but by the length of his attendance and the amount of physic he supplies. Non-dispensing practitioners charge only for advice, estimating it by quantity; others are content to set a price on their physic, and give the advice into the bargain: a mode of proceeding almost equal to that of Chinese physicians stating beforehand the cost of each drug they propose to administer for the consideration of the patient's friends, who, after much haggling, often end by striking out the more costly items from the prescription."

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At University College Dr. Corfield, Professor of Hygiene, lectured on the importance of his own branch of medical science. It was not essential that a medical student should enter this class, but it was very advisable. It might seem to some that it was no part of the business of a physician to prevent disease. But the lecturer urged that the claims of humanity should be placed above mercenary considerations. The Professor devoted about half his address to the advocacy of the disposal of sewage by the irrigation system.

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A curious address was delivered at the "Westminster," by Mr. Richard Davy, Surgeon to the Hospital. Dr. Davy disapproved of these introductory addresses *in toto*, and he should cut down his sermon from one hour to fifteen minutes. According to him, far too much stress was laid on the necessity of elaborate teaching. Above all, it was necessary that a young man should be taught self-reliance. His own efforts would then pull him through, just as a vigorous constitution was the mainstay of recovery independently of elegant prescriptions and repeated visits. London landladies, and then the payment and honours conferred on medical men were criticised. Their salaries were simply miserable; hospital-physicians and surgeons were for the most part unpaid; poor-law officers most piteously; surgeons in the services very badly; and young practitioners not at all. For seven years' hard work at the St. Marylebone Dispensary, he had received one guinea, and a very distinguished London assistant-physician had found that his salary equalled that earned by the man who put the skid on the 'bus wheels at Holborn Hill. The lecturer had been taught how dignified the profession was. In his opinion, the British public introduced far more largely the element of impudence than dignity into practice; to become a baronet was the Ultima Thule, and in the nineteenth century one could not maintain even this dignity without payment. They had to deal with an ignorant and proud people, and the lecturer advised every one to resign all thought of medicine unless he possessed these qualifications: first, independence; second, an aptitude for and love of the profession; and thirdly, the readiness to pay a heavy premium in this world for the prospect of reward in the next.

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At the "Middlesex," Mr. B. T. Lowne, Lecturer on Physiology, showed the influence on medicine of the discoveries in physical science, the microscope, the ophthalmoscope, in chemistry, physiology, and lastly of the possible results of the doctrine of evolution as taught by Darwin, Haeckel, and Huxley. From this he urged the acquirement of extensive knowledge both in the practice and theory of the art, and in the kindred sciences.

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At St. George's, Dr. Robert Barnes, physician-accoucheur, discussed the important, but not peculiarly appropriate, question respecting the impanelling of a jury of matrons in the case of a female prisoner condemned to die, and who pleads pregnancy. From this he glided into other legal subjects, and finally, as a humble Conservative, ventured to hope that his chief would continue to educate his party to the conviction that a successful policy can only be carried out by a proper appeal to medical science, and a more liberal treatment of medical practitioners.

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At King's College, Dr. Curnow, Professor of Anatomy, lectured on "Medical Education: its spirit and its method." Referring to the generally low standard of preliminary education, Dr. Curnow said that those whose powers of observation and reasoning had been called forth during school life had an immeasurable advantage, and the innovation by which a scientific training had of late years in a few cases taken the place of an early apprenticeship to the practical details of medicine and surgery was greatly to be commended.

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At Guy's, Dr. F. Stevenson was the lecturer. He urged his hearers to cultivate a sound medical education, observing the relationship of modern science to its theories, and not to aim so much at gain or applause. The future of the profession depended on the members of the profession themselves.

Correspondence

AMERICAN OIL OF PEPPERMINT.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—Your very interesting article in the last issue on peppermint has attracted my attention, and I should be glad to see it supplemented by a similar account of the culture and production of the oil in the United States.

The principal districts in which this culture takes place are in Wayne County, in the western part of the State of New York, and in Wayne County, in the state of Michigan.

Pure oil is the exception rather than the rule, especially when it reaches the dealers and exporters in the City of New York.

It is an important item in the exports to France and other continental countries, and somewhat, though relatively not so largely, to England.

In former years I had a large trade in peppermint, as well as other domestic essential oils, and I was often at my wit's end to determine the value (to myself) of different lots consigned to me or offered for sale by my interior correspondents.

A very effective test for the purity of peppermint oil, which was at that time known to but few in the trade, may be worth mentioning.

Place upon a spatula a small grain of iodine, and drop a little of the peppermint oil thereupon. If a fume arises, it is impure; if not, this oil may be regarded as perfectly pure.

Only a small percentage of the lots I have submitted to this test would give a favourable result; but it is only proper to state that any adulteration which existed was not always due to the dishonesty of the distiller or the intermediate dealers, but to the lack of care in separating other plants from the peppermint previous to its being distilled.

I am, dear sir, yours very truly,
American Druggist.
London: October 6, 1875.

SYNONYMS.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

Dear Sir,—Not seeing any of the following "Synonyms" in former lists of contributors, I send them for your disposal.

I remain, sir, yours truly,
West Hartlepool: C. Emerson.
Sept. 22, 1874.

Artificial oil of bitter almonds	Nitrobenzol.
Balsam of life	Tr. Benzoin Co.
Balsam of fir	Balsam Canadensis.
Barks	Cinchona.
Black sulphur	Sulph. vivum.
Black oils	A mixture of Ol. Lini, Terebinth., and Acid. sulph.
Butter colouring	Annatto.
Cheese ditto	Ditto.
Child's ointment	Ung. Hyd. Mit.
Cowhitch	Mucuna Pruriens.
Cow salts	Soda Sulph.
Cuttle fish powder	Pulv. Os. Sepia.
Dog nut	Nux Areca.
Essence of hiera picra	Dec. Aloes Co. Conc.
Essence of mirbane	Nitrobenzol.
Flax seed	Sem. Lini.
Fox's lungs	Syr. Rhæados.
Golden ointment	Ung. Hyd. Oxyd. Rub.
May shell	Os. Sepia.
Oil of Jupiter	Oil of Juniper.
Pickling acid	Acid. Acet. Fort.
Pyroligneous acid	Crude ditto.
Spirit of salts	Acid. Hydrochlor.
Trooper's ointment	Ung. Hydrarg.

FILTH AND FILTERS.

To the Editor of "The Lancet."[*]

Sir,—The article in your issue of September 4 on "Concentrated Filth" aims such a direct blow at the system of water-filtration that we hope you will allow us a small space for a few explanatory remarks.

There can be no doubt that the present condition of the water-supply of London is all that you describe, and that the whole system of drawing water from a polluted source is a disgrace to our civilisation. Although the Water Companies nominally comply with the Act of 1852, and filter the water before delivery to the consumer, the mode of filtration adopted is so unsatisfactory that, as you justly observe, "it seems intentionally designed to ensure a subtly impure condition" of the fluid. We have in our possession samples of water drawn *directly from the mains* of five London companies on May 3 last. These samples were placed in well-stopped bottles, and when first drawn were all tolerably clear; but after standing for a few days they began to develop a large number of animal and vegetable organisms, and at this moment present the appearance of the foulest, stagnant ditch-water. It is, therefore, evident that the water must have contained a quantity of germs which the filtering process failed to remove, and such water stored in a cistern which the householder is too apathetic to have cleaned out, must soon get into a condition more easily imagined than described.

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[*] This letter was published in the *Lancet* of September 18, and referred expressly to an article which had appeared in that journal of September 4.

Of course there are plenty of people ready to suggest a remedy for the evil; and judging from the schemes which make their appearance from time to time, it would seem the easiest thing in the world to bring pure water enough from Wales or Cumberland, at a trifling cost of fifteen or twenty millions of pounds, to supply the daily necessities of four millions of human beings. But it is probable that we of the present generation shall all be in our graves before this desirable improvement can be brought into operation, and therefore paterfamilias of the period must make up his mind to put up with his present supply, and do the best he can with it under the circumstances.

Now, assuming that the house-cistern is kept scrupulously clean, we still find that the water when delivered contains sufficient impurity to render it unfit for human consumption, and the question arises, "What is the most practicable way of dealing with it so as to prevent all risk of disease resulting from its use in the household?"

We all know that perfectly pure water is only to be obtained by distillation. But can distillation be made available for general purposes, and, if so, who would care to drink water so distilled? We are, therefore, thrown upon domestic filtration as the only available method of purifying our drinking-water, and that this method may be made *perfectly efficient* in depriving water of every injurious property is as capable of demonstration as that two and two make four.

Standing by the side of the bottles of water above mentioned is one containing the same water after being passed through a silicated carbon filter; and although three months have elapsed since this was done, the sample is still brilliantly clear, and will bear the most severe chemical examination, without showing the least indication of organic matter. Properly constructed, and capable of being cleaned at short intervals (every day if thought necessary), the domestic filter is the *only* apparatus at present known by which water can be effectively purified *immediately* before use; and wherever this is done, and the head of the household will take the trouble occasionally to see that his filter is kept clean, he can afford to wait patiently for a solution of the difficulty as to a better supply for the metropolis.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

Sir,—A recent incident illustrating the value of carbon filters for domestic use seems to me to be worth sending an account of to you.

The water supply of Versailles for drinking purposes has always been, and still is, notoriously insufficient and of inferior quality. Notwithstanding the millions of gallons furnished by the Marly Works for the grand fountains in the parks here, the resident population are mostly dependent on a supply derived from ponds, more or less stagnant, in the vicinity, and the water from the river Seine.

The quantity required for each family during every twenty-four hours is brought by hand, *soi-disant* filtered, and placed in other receptacles due to the inventive mind of our local potters, which are also said to be filters.

Perceiving, some years since, that even with these precautions the water continued to be almost undrinkable, I ordered from London two carbon filters, which were placed upon the buffet in the dining-room—a post of honour they have occupied ever since. All the water for our table use is run through them, and we have no longer any reason to object to the quality.

Recently, after an absence of seven weeks at the sea-side, in the hottest weather, a *carafe* of the filtered water, not stopped, was left on the side board, and on our return, the apartment having remained entirely unopened during our absence, the water contained therein was found to be as clear and tasteless as that ordinarily used by us every day: no sediment was observable.

Our filters have been in use three years; we cleanse them every few days, and, as you may infer from this letter, we should be very unwilling to part with them. I may add that in New York, where the celebrated "Croton" water is of exceptional purity, the use of carbon filters is general, and no family who can afford the expense is without them.

Yours truly,
SUBSCRIBER.

Versailles, France: October 4, 1875.

LEGAL & MAGISTERIAL.

SALE OF METHYLATED SPIRIT.

On Sept. 21, Jane Greig, widow of the late Mr. Greig, chemist and druggist, Dunbar, and still carrying on the business there, was prosecuted at the instance of the Board of Inland Revenue, before the justices in Haddington, for selling a quantity of methylated spirits without a license. Mr. Smith, supervisor, conducted the case for the Board, and Mr. C. Notman, writer, Dunbar, appeared for the defender. The charge was that on June 12 last the defender had sold a pint of methylated spirits without a license, having thereby incurred a penalty of 50*l.*

Mr. Notman, before the proof was gone into, made an explanatory statement. Since the death of her husband, the defender had got the help of John A. Bell, a young and registered assistant, who attended solely to the shop. Some time ago a young exciseman named Parsey came to Dunbar, and got to be friendly with the shopman, coming frequently about the shop. On the representation of the exciseman that he wished a little methylated spirits to varnish a walking-stick, Bell sent into Edinburgh for some, and sold it to Parsey, on the mutual understanding between them both that it was to be considered as mixed with gum, in which state alone it was competent to dispose of it without a license. No sooner, however, had Parsey got it into his possession than he lodged information, and the result was a prosecution on the part of the Excise. Mr. Notman expressed an opinion that a trap had been set for the assistant—a mode of proceeding on the part of the Excise that he considered most unfair.

The facts brought out by evidence were to something the same effect.

Mr. Notman then addressed the court in mitigation of penalty. He could not deny that there had been a sale; but he craved the consideration of the justices to the whole circumstances of the case. He thought it extremely cruel on the part of the Excise to lay a trap, as they had done here; and he hoped the justices would take the opportunity of expressing their dissatisfaction at the manner in which the officers of Her Majesty's Inland Revenue had acted in the case. If they could not remit the penalty altogether, he hoped they would reduce it to the smallest amount within their power, with a further recommendation to the Commissioners of Inland Revenue to mitigate it still further.

Mr. Smith said he would not have taken the slightest notice of Mr. Notman's remarks if they had been made with regard to an aged officer, but it was his duty to protect the character of a young and very efficient officer, who had, he knew, met with a good deal of abuse in Dunbar in connection with this case. Mr. Parsey had simply obeyed instructions in this matter, and if he had not it would not have been to his advantage. All the officers of the Inland Revenue were under authority, and were bound by their oath to carry out the instructions they received, irrespective altogether of the circumstance whether poor or rich were involved. He knew that by so doing they were frequently abused by the ignorant, and even by those whose superior intelligence ought to enable them to know better. He felt it his duty to say this much in vindication of a young officer.

Sheriff Sherreff said there could be no doubt that Parsey was only acting in the discharge of his duty. It was painful when such things happened, but it was necessary that the revenue should be protected. At the same time it was a case that did not call for the extreme penalty.

In reply to an inquiry by the Bench whether there was any suspicion of the shop, Mr. Smith said not particularly; but he thought it strange that none of the druggists in Dunbar should have a license for the sale of methylated spirit, when he knew perfectly well that it was sold there. The license was only 10*s.* yearly.

The modified penalty of 12*l.* 10*s.* was then imposed, with a recommendation that the Commissioners of Inland Revenue should still further mitigate it.

At the Stonehouse Petty Sessions, Mr. Pelham C. Maitland, chemist and druggist, Chapel Street, was summoned for selling methylated spirits without a license.

Mr. Bridgman prosecuted on behalf of the Board of Inland Revenue, and Mr. R. G. Edmonds defended. In June last the defendant's shop was visited by an Excise officer, who asked for some methylated spirit. The defendant told him he had none, but that he had what was called "finish," which was just the same. The officer purchased some, and it was sent to Somerset House for analysis.

Mr. Woodward, supervisor, stated that he afterwards saw the defendant, who stated that he was selling the spirit as "finish." Witness asked him whether he was satisfied that it was "finish," and he replied that he was, and produced his invoice. By Mr. Edmonds: Defendant gave him as much information as any chemist to whom application had been made.

Evidence was then given to show that the spirit did not contain sufficient gum to make it "finish."

Mr. Edmonds, in defence, contended that the defendant was not morally guilty of any offence whatever, and said he saw no reason why he should not have been summarily dealt with, as other chemists had been, for, according to the evidence of the prosecution, he gave as much information as those who had been let off with a fine of 10*s.* The spirit was bought by defendant as "finish."

The Bench said that the law had been infringed, and they had no alternative but to fine the defendant the mitigated penalty of 12*l.* 10*s.*, but they recommended that the fine should be further reduced.

At Worship Street Police Court, on the 12th inst., Messrs. William, Thomas, and Robert Lye, wholesale oilmen and drysalters, of Commercial Street, Spitalfields, were summoned by the Excise authorities for selling methylated spirits without a license.

Mr. Douglas Straight defended, the Inland Revenue being represented by Mr. Martin.

The evidence showed that on August 18 an officer of Excise purchased at the premises of the defendants a pint of methylated spirit, or what was served to him as such, and this was subsequently submitted to analysis by Mr. Burge, a chemist employed at the Laboratory, Somerset House, and was found to be methylated spirit slightly admixed with resin.

Mr. Martin said that the Board of Inland Revenue permitted methylated spirit to be sold when mixed with resin or gum to the extent of 3 ozs. of such matter to a gallon of spirit. In this case the evidence of Mr. Burge went to show that the spirit contained two-thirds less than the quantity of gum allowed.

Mr. Straight, after cross-examination, elicited that it was likely that the mere seller of the spirit would not know that it contained only the third of the gum resin.

Mr. Straight, for the defence, pointed out that the statute appeared to desire to provide against a spirit being sold for purposes of consumption. The admixture of resin or naphtha would make it undrinkable, and the spirit, where sold, was to be at least 50 over proof.

Witnesses were called to prove that the mixture was sold to the defendants as the plaintiff received it.

Dr. Redwood, Doctor of Philosophy and M.Ph.S., was also called. His analysis was substantially the same as that of Mr. Burge, and he also said that prior to the passing of the Act, and the definition of "finish" by the Board of Inland Revenue, "finish" was generally sold with no more admixture of gum than was contained in that sold by the defendants.

Mr. Bushby fined the defendants 12*l.* 10*s.*, one-fourth of the penalty, but added that as he believed they had acted *bonâ fide* in the sale, he recommended that the Excise authorities should further reduce the penalty to 5*l.*

William Mullins, of 104 Hackney Road, and Walter Rocke, of 206 Hackney Road, were also summoned for selling methylated spirits without a license.

They pleaded ignorance.

Mr. Bushby thought that the authorities, having brought the matter before the public in the other case, might be satisfied with a penalty of 5*l.* in each of these cases, but he was compelled to order the payment of 12*l.* 10*s.* fine.

Messrs. Walton, Hassell & Port, oilmen, were also summoned, but the summons was adjourned by consent for a month, Mr. Martin saying that the defendants were under terms of settlement with the Excise.

PROSECUTIONS UNDER THE PHARMACY ACT, 1868.

Robert Henson, of 29 Fowler Street, Sheffield, who was proceeded against for the illegal sale of poisons, at the County Court, Sheffield, on August 25 last, when judgment was deferred until the October Court, has now been sentenced to pay the penalty and costs.

Robert Lund Tempest, of 3 Rippenden Road, Oldham, has been proceeded against for carrying on the business of a chemist and druggist illegally. On the case being taken into court the defendant paid the debt and costs, 5*l.* 6*s.*

Samuel Humphrey, of 20 Church Street, Woolwich, who was being proceeded against for carrying on the business of a chemist and druggist illegally, has died suddenly.—*Pharmaceutical Journal.*

LONDON BANKRUPTCY COURT.

(REPORTED FOR "THE CHEMIST AND DRUGGIST.")

Mylius Cohen, Manufacturer of Chemicals and Chemical Manures, 30 Fish Street Hill.

The adjudication in this case was made upon the petition of Mr. Charles Boundy, spelter manufacturer, Ripley, trading as the Ripley Spelter Company; and the first meeting under the bankruptcy took place on October 5 before Mr. Registrar Spring Rice. The bankrupt presented a statement of affairs containing the following figures:—Creditors unsecured, 4,640*l.* 7*s.* 5*d.*, and creditors fully secured, 3,773*l.* 16*s.* 6*d.*; with assets—book debts, 1*l.* 1*s.* 1*d.*; furniture, &c., 106*l.* 10*s.*; and an estimated surplus of 2,613*l.* 1*s.* 9*d.* from property held as security. The following were in the list of creditors:—

	£	*s.*	*d.*
C. Boundy, Ripley	2,266	0	0
Leopold Stiebel, 14 Sherborne Lane	700	0	0
J. Cunningham, Warmley, near Bristol	650	0	0
J. P. Cohen & Co., Fenchurch Street	521	0	0
Cohen Brothers, Hanover	137	0	0
Neumann Brothers, Cloak Lane	90	0	0
F. B. Marvin, Finsbury Pavement	40	0	0
Peat & Chattock, Upper Thames Street	22	0	0

Proofs to the amount of about 3,600*l.* having been admitted without opposition, Mr. C. Boundy, the petitioning creditor, was appointed trustee; Messrs. J. P. Cohen, 32 Fenchurch Street, and J. Cunningham, of Warmley, being nominated a committee of inspection.

T. C. Tayler, Upton, Essex.

The debtor, now out of business, had lately traded in partnership with James Dixon, as chemical light manufacturers, at the Albert Works, High Street, Stratford, under the firm of Dixon and Tayler. He had presented a petition for liquidation, and on October 8 Mr. W. Elam applied to the Court for the appointment of Mr. Breckels, accountant, Guildhall Chambers, as receiver, and for an interim order staying further proceedings at the suit of several creditors. The liabilities amounted to about 720*l.*, and the debtor stated that his assets consisted of 250*l.*, due to him from his late partner James Dixon, also furniture of the value of 150*l.*—Mr. Registrar Spring Rice appointed Mr. Breckels receiver, and granted an interim injunction.

Trade Notes.

QUINETUM.—This is the suggestive if not rigidly classical name under which Mr. Thomas Whiffen, of the Quinine Works, Battersea, offers the whole alkaloids separated from East India red bark. A corresponding preparation of the Government quinine factory in India has been used for some time in our Eastern possessions with marked success, particularly in the hospitals; and the concurrent testimony of medical men there as to the value of the whole alkaloids when compared with quinine is to the effect that the latter is not so greatly superior to the former that it is worth while going to the trouble and expense of separating the sulphate in the pure state. This being the case, one must confess to a feeling of surprise that the whole alkaloids have not been exploited in this country with something like energy until now. It is highly probable that a preparation for which we have the voucher of the Indian Government that it is nearly equal to quinine in efficacy, being only half the price, will be largely used in hospital and general practice; and Mr. Whiffen has acted wisely, not only in introducing quinetum, but in choosing as the source of it a bark which, though rich in alkaloids generally, is not in extensive demand for quinine manufacture. Quinetum is a fine granular non-adherent powder of a pale buff colour. The proportions of the various alkaloids present will of necessity vary with the sample of bark used, yet probably not so much as to be of moment medicinally. The sample submitted to us left no residue on ignition. Twenty grains of it dissolved in 40 minims acid. sulph. dil. B. P. and 340 minims water to a clear brown liquid from which we obtained 6½ grains of quinine. Sulphate of quinetum is a white crystalline body with a faint pink tinge, greatly resembling sulphate of quinine. It dissolves readily in dilute acids, and the solution exhibits a strongly marked fluorescence. Quinetum and its sulphate will probably be supplied to the trade at about 4*s.* and 4*s.* 6*d.* per ounce respectively.

⁂

WE SAW LATELY some beautifully finished syphons turned out by Mr. Geraut, of Corporation Buildings, Farringdon Road. Mr. Geraut says he now sends out all like them. The metal part is polished like a mirror and is made entirely of pure block tin. In consequence of improved machinery these syphons are not only better and handsomer than the old ones, but they are sold at 25*s.* instead of 30*s.* a dozen.

⁂

THE DRAWING BELOW represents a useful invention brought under the notice of all bottlers by Messrs. Wilson & Co., of Woodbridge. The intention is to use it as a store rack for dirty bottles ready to move to washing machine and thence to the bottling department quite readily. A gross of bottles can be moved about in this rack more easily than can a couple of dozens in a basket. It will be observed that no two shoulders of bottles come into contact in this rack, and consequently the risk of breakage is very largely reduced. Another advantage claimed is that when washed and placed in the rack the space between the tiers is sufficient to allow of rapid drying.

⁂

MR. JAMES EWEN, of the Clarified Fat Works, 5 Hatfield Street, S.E., has taken into partnership his two sons, Messrs. Arthur J. and Philip E. Ewen. The business will henceforth be conducted under the style of James Ewen and Sons.

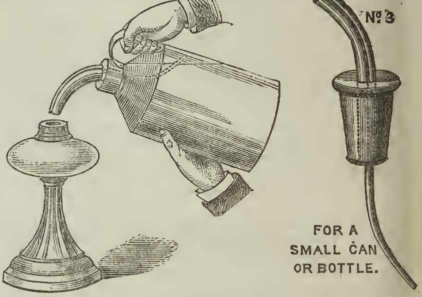
MESSRS. DOWS, CLARK & CO. have just introduced a new bottling machine which seems to possess certain advantages over those commonly in use. The lever or handle by which the cork is driven into the bottle is so arranged with cog wheels that a greater power is obtained, and very little strength is required to drive the cork home. The machine is well made, and durability may be relied on.

⁂

MESSRS. DOWS, CLARK & CO. have also produced a new oil of vitriol or sulphuric acid syphon machine intended to supersede the inconvenient and dangerous practice of handling or pouring out oil of vitriol from the carboy when wanted for use. The syphon is so arranged that, with a glass tap connected with a pipe which passes to the bottom of carboy, the oil of vitriol can be drawn into a jug or suitable vessel until the whole is exhausted, and without risk to the eyes, hands or clothing.

⁂

RANDALL'S "ASTRAL" OIL.—Messrs. Randall Bros., of 12 Lime Street, are the makers of the "Imperial Astral" oil, a beautifully white and safe product from petroleum. For chemists with a family connection this oil is worth introducing. It is supplied in capsuled cans, thus saving the annoyance of measuring out, and from what we hear of the oil it is well worth the price at which it retails—slightly higher than kerosine.


Nº 3
FOR A SMALL CAN OR BOTTLE.

PATENT SYPHON CORK.—The same firm has recently introduced a patent syphon cork, represented above. It is made of tin surrounded by rubber, and is provided with an air tube. As it is made in several sizes it is adapted for other purposes besides pouring out oil. For instance, it can be applied to a wine bottle and the wine decanted through it without breaking the crust, and quite as easily as if a funnel were employed.

⁂

ALLEN AND HANBURY'S JUJUBES BY HAWKER'S PROCESS.—Last winter we noted the superiority of these jujubes over those usually made, especially in the fact that they do not run together, but we remarked then that the summer would be the best time to test this property of the jujubes. We have had the opportunity of examining a good many samples of these jujubes which have been kept through the summer, and we find that the warm weather has not at all injuriously affected them. The jujubes are very excellent in flavour as well as in make, and we recommend them to the notice of chemists who have not yet bought them.

⁂

WE HAVE before us samples of baking powder manufactured by Mr. W. H. Williamson, of Manchester, the maker of the "Victoria" sauce. We suppose the baking powder is itself much the same as other baking powders, but the style in which it is put up for sale, in 3*d.* wooden boxes, and in 6*d.* and 1*s.* tins, is certainly superior, and worth the notice of retailers.

⁂

MESSRS. DUNN & CO., manufacturing chemists, have had to remove from their premises in Princes Square, Finsbury, that spot being required by the London and North Western Railway Company. Messrs. Dunn's address is now Stirling Chemical Works, West Ham, E.

Obituary.

BOMFORD.—August 31, Mr. John Alfred Bomford, chemist and druggist, of High Street, Warwick. Aged 36 years.

BOOK.—August 23, Mr. William Book, chemist and druggist, of Middleton, near Manchester.

BOURDAS.—September 4, Mr. John Bourdas, pharmaceutical chemist, of Pont Street, Belgravia. Aged 32.

BROWN.—September 12, at 1 Lorne Terrace, Edinburgh, Mr. D. R. Brown, pharmaceutical and manufacturing chemist, of Messrs. J. F. Macfarlan & Co. Aged 66 years.

COLBY.—September 16, Mr. John Colby, chemist and druggist, of Western Road, Brighton. Aged 74 years.

COLLIN.—August 20, Mr. James Collin, chemist and druggist, of Queen Street, Derby.

GARNHAM.—August 15, Mr. Barrington Garnham, pharmaceutical chemist, of Brighton.

HAMILTON.—August 13, Mr. James Hamilton, chemist and druggist, of Glasgow.

HANCOCK.—August 1, Mr. John Thomas Hancock, chemist and druggist, of Dowlais, Glamorganshire.

HASTINGS.—September 7, Mr. Alfred William Sevin Hastings, chemist and druggist, of Richmond, Surrey. Aged 43 years.

KING.—September 11, Mr. William Raymond King, chemist and druggist, of Liverpool. Aged 44 years.

LEWIS.—August 19, Mr. Thomas Hopkin Lewis, chemist and druggist, of York Street West, Commercial Road, E.

PENN.—August 16, Mr. George Penn, chemist and druggist, of Kirton-in-Lindsey, Lincolnshire.

READMAN.—September 19, Mr. Henry Readman, pharmaceutical chemist, of Mortimer Street, W. Aged 50 years.

TAYLOR.—September 10, Mr. Henry Francis Taylor, chemist and druggist, of Summerland Street, Exeter. Aged 23 years.

TREBLE.—October 4, at Hoxton, Mr. G. Treble, senior, of the firm of G. Treble & Son. Aged 68 years.

BANKRUPT.

COHEN, MYLIUS, 30 Fish Street Hill, manufacturer of chemicals and chemical manures. Sept. 14.

LIQUIDATIONS.

(By arrangement or composition.)

Notices of first meetings have been issued *in re* the following estates. The dates are those of the petitions :—

ALEXANDER, JAMES, Edenbridge, Kent, physician and surgeon. Sept. 1.
BOULGER, PATRICK J., St. Giles Street, Norwich, surgeon-dentist. Oct. 2.
BOYLE, ANDREW A., Hutton Rudby, Yorkshire, surgeon. Sept. 16.
COLEMAN, SILAS, High Street, Cinderford, Gloucestershire, chemist. Sept. 27.
GRAHAM, GEORGE Y., 94 Granville Street, Cheadle, late Stockport, both Cheshire, surgeon. Sept. 10.
HALL, JAMES, Chorley, Lancashire, manufacturing chemist. Sept. 29.
HUSKINSON, JOHN L., Great Alfred Street, Nottingham, chemist and dentist. Sept. 6.
JONES, GRACE L., Bettwsycoed, Carnarvon, chemist. Oct. 6.
JONES, JAMES P., & STRICKLAND, GEORGE H., Newcastle, chemists. Sept. 27..
LANGRIDGE, CHRISTOPHER, Elm Street, Manchester, chemical dealer. Sept. 29.
SCHOFIELD, JAMES, Stratford, chemical light manufacturer. Sept. 14.
STEWART, CHARLES, the Haves, Cardiff, chemist and general dealer. Oct. 6.
STONEHOUSE, CORNELIUS, Horsforth, Yorkshire, surgeon. Sept. 28.
TROW, ALFRED G., Smallbrook Street, Birmingham, chemist. Sept. 16.
WILKINSON, MATTHEW, Hartlepool, chemist and grocer. Sept. 7.

DIVIDENDS DECLARED.

HIRST, GEORGE, trading as Hirst & Co. (Liq.), Sheffield, druggist; second and final div. 3*s*. 6*d*., E. Bennett, 50 Norfolk Street, Sheffield.

VORLEY, FOSTER (Liq.), Rushden, Northamptonshire, drug dealer; first and final div. 2*s*., J. G. Ham, Cambridge Street, Wellingborough.

BANKRUPTCY ANNULLED.

BROCK, WILLIAM K. (April 2, 1872), Addison Terrace, Kensington, surgeon. May 7.

STEWART, CHARLES, Hareleeshill, Larkhall, physician and surgeon. Sequestrated May 16, 1863 : discharged Oct. 8, without composition.

BANKRUPTCY CLOSED.

BROOK, WILLIAM K. (April 2, 1872), St. Stephen's Terrace, Uxbridge Road, Shepherd's Bush, surgeon. Oct. 8.

CRAWSHAW, JAMES, WILLIAM & JOHN, and STEPHENSON, JOHN T., Elton, Lancashire, drysalters (divs. to the amount of 13*s*. 7½*d*. have been paid.) Sept. 22.

PARTNERSHIPS DISSOLVED.

DIXON & TAYLER, High Street, Stratford, chemical light manufacturers Oct. 4.

GAUNT & FULLER, 221 Union Street, Southwark, chemists. Sept. 29. Debts by Rann D. H. Gaunt.

EAU DE SELTZ COMPANY, Liverpool and Manchester, mineral water manufacturers. Sept. 1.

MARTLAND & WILLIAMS, Blackburn, physicians and accoucheurs. Sept. 28. Debts by William Martland.

MILLARD, RICHARD HAMBIDGE, & SONS, 44 Barbican, druggists' sundrymen. Sept. 1. As regards Robert H. Sanders.

ROTHERY, ROBERT, & Co., Hightown and Liversedge, Yorkshire, manufacturing chemists, soap manufacturers, and commission agents. Sept. 22. Debts by Robert Rothery.

[The following list has been compiled expressly for THE CHEMIST AND DRUGGIST by L. de Fontainemoreau & Co., Patent Agents, 4 South Street, Finsbury, London; 10 Rue de la Fidélité, Paris; and 33 Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

2061. W. Bull, of Lower Norwood, Surrey. Improvements in generating and applying heat in evaporating saline and other liquids, in the manufacture of chloride of sodium and other crystalline substances, and for other heating purposes, and in apparatus connected therewith. Dated June 4, 1875.

2873. C. F. Burnard, of Plymouth Chemical Works, Plymouth. Improvements in the manufacture of sulphuric acid. Dated August 14, 1875.

2880. R. O. Paterson and F. W. Brothers, both of Cheltenham, Gloucester. Improvements in obtaining salts of ammonia. Dated August 16, 1875.

2976. F. Field, of Hithergreen Lodge, Lewisham, Kent. Improvements in the treatment of the solutions of aniline colours for producing pigments therefrom. Dated August 25, 1875.

Letters Patent have been issued for the following :—

852. L. Gori, of Florence, Italy. Improvements in the means of or in fittings or in apparatus for stoppering or closing bottles or vessels, whether for effervescing, gaseous, or fermented, or for other liquids. Dated March 8, 1875.

968. A. Smith, of Marsh Gate Lane, Stratford. Improved appliances for closing aërated liquid bottles. Dated March 16, 1875.

2036. M. Gill, of Huddersfield, Yorkshire. A new stoppered bottle. Dated June 2, 1875.

2446. Emma J. Thom, of Pendleton, Lancashire. Improvements in apparatus for filling bottles and other vessels with aërated and other liquids, and for drawing off the same. Dated July 7, 1875.

Specifications published during the month :—

Postage 1*d*. each extra.

1874.

4458. H. Müller. Manufacture of carbonate of soda. 10*d*.

1875.

33. A. Dudgeon. Distilling spirits. 4*d*.
103. J. Howitt and another. Stoppering bottles, &c. 8*d*.
147. J. Hargreaves. Manufacture of sulphates. 10*d*.
248. H. Jones and another. Stoppers for bottles. 4*d*.
262. H. Aylesbury. Stoppers for bottles. 8*d*.
332. H. Deacon. Manufacture of chlorine. 10*d*.
349. S. & A. Chivers. Concentrating sulphuric acid. 1*s*.
418. J. Wadsworth. Stopper for bottles. 8*d*.
455. W. A. Lyttle. Manufacture of alkali, &c. 4*d*.
627. W. A. Lyttle. Manufacture of alkali, &c. 4*d*.
704. J. H. Johnson. Treating alumite to obtain alum. 4*d*.

TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of THE CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of THE CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

FOR DISPOSAL.

Ornamental lamp bracket. Henzell, Chemist, Newcastle.

Parrish's "Pharmacy," 4th edition, cost 30*s.*, for 15*s.* H. Chambers, Huntingdon.

A number of various sized shop bottles, drawers, and fixtures; also a 25-gallon oil tank. Davies, Ruabon.

Complete set of books for Preliminary, some new, 7*s.* 6*d.* G. Jones, Wandsworth.

Withering's "British Plants." 5th edition, 4 volumes, re-bound, 12*s.* 20/109.

To sell, or exchange, a water bed, full size, made by Hooper. 17/109.

Set of lenses and prisms (Browning's) for spectroscope. 18*s.* Buck, 9 East Street, Middlesbro'.

Fol. Sennæ Tinnevelly opt., 7½*d.*; oleum palmæ opt., 4½*d.* Sample of either free for penny stamp. Macpherson, Stornoway.

Full size water bed complete, price 4*l.* 4*s.*; gas oven, price 20*s.*; 12 dozen soda water rack (Burrows'), 10*s.* S. T., 46 All Saints Road, W.

THE CHEMIST AND DRUGGIST complete from commencement in 1859 to December, 1871; 13 volumes in good condition. Price 35*s.* unbound. C. E. M., Sussex House, Forest Hill.

A lot of salt-glazed stoneware bottles suitable for liquid blue, ink, &c. What offers in cash or exchange? W. Laird, Westport, Dundee.

Muspratt's "Chemistry," in seven vols., quite new. Published at 10*s.* 6*d.* each, for 7*s.* each. W. R., 28 Manor Street, Dublin.

The "officinal," and all the leading wild plants (120), beautifully mounted, classed, and named, 10*s.* 6*d.* free. Mr. Higginson, New Ferry, Birkenhead.

Small square strong tincture press, 5*s.*; about 50 lbs. Liq. Quassiæ Incis., 18*s.* cwt.; ebonised cigar case, Maw's Fig. 53, 12*s.* 6*d.*; 42-inch kitchener, oven and boiler, nearly new, 35*s.* Goulden, Uckfield.

Thornton's "British Botany," 5 vols., containing hundreds of plates of the genera, and thousands of dissections invaluable to students, only 24*s.* Mr. Higginson, New Ferry, Birkenhead.

Halse's medical galvanic apparatus with directions complete, cost ten guineas. Half price or any reasonable offer. Also "THE CHEMIST AND DRUGGIST," not bound, for the years 1869–70–71. Manby, Chemist, Southampton.

A student's microscope, with polarising prisms; also a beautiful collection of objects, in two mahogany cabinets, with locks and keys. Particulars on application. Address, Hutchinson, 146 Duke Street, Leith.

Bentham's "British Flora," perfectly new copy, for sale at half cost price. Last edition, profusely illustrated. Price on application by letter to R. D., 13 Harrington Street, Hampstead Road, London, N.W.

Fergusson's "Practical Surgery," 5*s.*; Clater's "Cattle Doctor," 4*s.*; Churchill "On Diseases of Children," 5*s.* 6*d.*; "Pharmaceutical Journal," January 6, 1872, to September 20, 1873, inclusive. What offers? Stead, Chemist, Lees, near Manchester.

Eight ounces tinct. catechu, eight gum catechu, three bottles Grimault & Co.'s syrup hypophosphite of lime, three Harper's Virginian gum, one lb. pulv. cort. quercus, two dozen two-ounce covered pots, two large boxes elastic bands. Kirkman, Chemist, Dedham, Essex.

Secondhand mahogany shut-up washstand with jug, basin, and slop pail complete, in good condition; will be sold cheap; suitable for pharmacy, surgery, or bedroom. Also lady's abdominal belt, new, cost 14*s.*; cash or exchange for patents. J. T. B., 6 St. George's Terrace, Kilburn.

Handsome "cigar and upright case," mirrored back, cost 8*l.* Good as new almost. Will take 5*l.* Rough sketch and particulars forwarded. Also 40 and 60 brass wire oak sieves, with drums to fit either. Maw's price 18*s.* 6*d.*, take 10*s.* Walter Stead, Westgate, Heckmondwike.

Two show boards, 7 feet high by 5 feet, handsomely painted, new; one, "Horse and Cattle Medicines," with animal figures; the other, "Dispensing and Family Chemist," with laboratory scene painted on. Price 5 guineas; cost 10 guineas. Apply, William Winter, Prince of Wales Road, Norwich.

To be sold, mahogany fixtures for a shop 18 feet and 11 feet, also bottles, jars, &c., for same, two window cases, ten show bottles and carboys, and numerous other necessaries for a chemist's shop, all in good order, drawers with glass labels and knobs. Write for particulars to J. H. D. Jenkinson & Co., Sheffield.

Analytical balance by Becker, perfect condition, very little used, 5*l.*; cost nearly 8*l.*; also Beasley's "Pocket Formulary," 3*s.* 9*d.*; Smith's "Guide to Examinations," 4*s.* 6*d.*; Barber's "Pocket Formula," with maps, 3*s.* 9*d.*; Royle's "Materia Medica," 8*s.* 6*d.*; all new and post free. R., 24 Russell Street, Covent Garden.

"Year Book of Pharmacy," 4 vols., '70, '71, '72, '73; CHEMIST AND DRUGGIST for November and December, 1868; complete for 1869 all but December; ten numbers '70 (March and October missing). Complete for '71, '72, '73, and all numbers for '74 except April. Seventy numbers in all. Offers wanted. Say who is to pay carriage. J. E. Eastman, Chemist, Tottenham.

Several volumes of the "Pharmaceutical Journal," Cavendish "Society Publications," Rose's "Chemistry," Hardwicke's "Photography," &c., and other works. As these are to be sold for the benefit of three orphan daughters of a late member of the Pharmaceutical Society no reasonable offer will be refused. E. Hollier, Dudley, will send a list to any one likely to purchase.

Show jar, Maw's figure 19, 24 inches high, 40*s.*; leech aquarium, large, complete, and perfect, 10*s.* 6*d.*; Sykes' hydrometer, gilt, with book all perfect; what offers? Three 5*s.* Comaline hair restorers, four 2*s.* 6*d.* ditto, four Comaline gloss, all clean, for the lot, 15*s.*; eleven 4*s.* 6*d.* Dr. Levenstone's African rheumatic oil, perfectly clean, 22*s.* the lot. Lockwood, Chemist, Sheffield.

Cooley's "Cyclopœdia of Practical Receipts," 4th edition Lescher's "Elements of Pharmacy," Beasley's "Druggists, Receipt Book," Smith's "Dental Anatomy and Surgery," Harrison's "Diseases of Children," Stockhardt's "Experimental Chemistry," Cooke's "Structural Botany," Lindley's "Elements of Botany," Lindley's "School Botany," "Circle of Sciences," new and elegantly bound in ten volumes, cost 8*s.* 6*d.* per volume. Offers wanted. 28/109.

Marble mortar and pestle, 12 inches diameter, nearly new, 10*s.* 6*d.*; 9-inch ditto, 8*s.* 6*d.*; flat counter case, plate glass, 3 feet 3 inches by 2 feet, 25*s.*; perforated window screen, in frame 6½ feet by 3 feet, 7*s.* 6*d.*; 9 one-gallon black tincture bottles, gold labels, nearly new, 2*s.* each; window carboys and stands, cheap; marble slab, 13 inches by 13 inches, 3*s.* 6*d.*; round slab, 11 inches diameter, 2*s.* J. Floyd, Bury St. Edmunds.

For sale the following patents and sundries:—Bailey's sulphine, Hoff's malt extract, Lord's marking ink, Floyd's vermin killer, Woodcock's wind pills, Calvert's pig powders, Fox's palatable cod liver and castor oils, fancy powder boxes, Staley's dog soap, Hibbert's saline, &c., all at 25 per cent. discount; also several first-class oil cisterns for petroleum, benzoline, and seed oils. For particulars write to J. H. D. Jenkinson & Co., Sheffield.

Upright mahogany show case, 2 feet 7 inches by 14½ inches, 20*s.*; upright show case, gilt front, 4 shelves, 3 feet 7 inches long by 2 feet 8 high, folding doors at back, 25*s.*; 2 cameras and lenses, 1 large show jar, 27 inches high, with cover, Royal arms, damaged, 33*s.* 6*d.*; S. G., bottle in case with counterpoise brass counter scales, similar to Fig. 1 Maw, 17*s.* 6*d.* Stamp for reply to Appleton, Brightside Lane, Sheffield.

All carriage paid.—Ballard & Garrod's "Materia Medica," 3*s.* 6*d.*; Ranking's Lugol's "Scrofulous Diseases," 2*s.* 6*d.*; Rees' "Analysis Blood, &c.," 2*s.* 6*d.*; Munro on "Insanity," 2*s.* 6*d.*; Ramadge's "Diseases of Heart," coloured plates, 3*s.*; Ruddock's "Diseases of Lungs and Heart," coloured plates, 2*s.* 6*d.*; Harcourt and Madau's "Chemistry," 1869, 2*s.* 9*d.*; Odling's "Outlines of Chemistry," 1870, 3*s.* 6*d.*; Wilson's "Macadam's Inorganic Chemistry," 2*s.* 6*d.*; Druitt's "Surgeon's Vade Mecum," 4*s.* 6*d.*; Wilson's "Anatomist's Vade Mecum," 3*s.* 6*d.*; Gregory's "Organic Chemistry," third edition, 2*s.* 6*d.*; Davis's "Obstetrics" (published 21*s.*), 7*s.* 6*d.*; Gregory's "Practice of Medicine" and Watson's "Practice of Physic," 3 thick vols., 7*s.* 6*d.* Letter only, to M. P., 24 Whitcomb Street, Leicester Square, London.

10 dozen bottles, 2 eight gallon carboys, 4 four gallon ditto, 6 three gallon ditto, 8 specie jars, 6 dozen white ointment jars, 3 dozen extract jars, 9 dozen brown stone jars, japanned covers, a 10 feet 6 inch by 15 inch plate glass facia, several glass jars as Maw's fig. A and D, fancy gold label in colours and gold, &c.; sponge case, fig. 92; 6 feet best plate counter case, as Maw's fig. 105; a 3 feet 9 inch best plate ditto, Treble's No. 9; a 3 feet best case shelf at back, 40*s.*; a 3 feet by 17 inch by 8 inch best case, 30*s.*; tooth brush case plate, 31*s.* 6*d.*; 2 three feet bevil plate glass cases, Treble's fig. 8, 17 inches wide, 45*s.* each; a very superior soda stand, 3*l.*; a plate glass show stand, as Treble's fig. 27, almost new and perfect, price 55*s.*; several sheets of silvered plate glass, 55 by 24, 40*s.*; 66 by 18, 45*s.*; 40 by 41, 40*s.*; 60 by 30, 70*s.*; 48 by 24, 40*s.*; 24 by 15, 13*s.* E. Natali, 23 Colveston Crescent, Ridley Road, Kingsland.

WANTED.

Cistern to hold from 100 to 150 gallons. Hill, Wingate, Durham.

Second-hand plate electrical machine; also binocular microscope, in perfect working order. 19/110.

Camplin "On Diabetes," 2nd edition, two copies wanted. Jewsbury & Brown, Manchester.

Royle & Headland's "Manual of Materia Medica," last edition. "Alpha," 169 Hemington Road, Barnsbury.

Attfield's "Chemistry," Squire's "Companion," Bentley's "Botany," latest editions, good condition. Cook, 6 Cleveland Terrace, Bath.

Attfield's "Chemistry;" Royle or Garrod's "Materia Medica;" "British Pharmacopœia"—state editions and price. W. P., 35 Haymarket, London.

Pereria's or Royle's "Materia Medica," Pereira's preferred; Pereira's "Selecta e Prescriptis," recent editions; state price and condition. Howard Hogben, High Street, Hitchin.

Specie jar for window, Maw's or equal to Maw's; weight, 26½ inches to shoulder; diameter at base, 14½ to 15 inches, white ground and royal arms preferred. Cubitt & Son, Market Place, Norwich.

Small ointment pots, syrup, powder, and tincture bottles; pill machine; counter and dispensing scales, 2 by 24 inch; white specie jars, counter desk with case, nest, small drawers, 6 feet by 4, screen 3 feet; outside oil lamp with lenses; counter, 12 feet, and other fittings suitable for a druggist commencing business. 30/110.

TRADE REPORT.

Although the general trade of the country seems still to manifest a downward tendency, as evidenced by the published statistics, the export of chemicals is this month one of the few exceptions, showing a higher value of business done in comparison with September of last year.

The demand has been especially noticeable in regard to bleaching powder, which is much firmer in the quotations. Some of the largest makers abstained from offering their products, believing that still further orders were behind, but their anticipations of any considerable revival of trade seem hardly to have been verified as yet.

Sulphate of ammonia and sulphate of copper are both steady at a slight advance. Citric acid is firm at 2*s.* 11*d.*, and tartaric quiet at 1*s.* 6½*d.* There is not much prospect, we think, of a renewed high market for the former, the supply of juice being, we have reason to believe, if not abundant, at least fair. This statement is illustrated by the following little story, the facts of which are related in the circular of Mr. Ainis, of Messina:—"A local firm," he tells us, "purchased a small lot of bergamot at the equivalent of 23*l.* 15*s.* per pipe f.o.b. December-January, in the hope that by so doing they would excite makers, give an impetus to prices, and realise at a better advantage their stock of about one hundred pipes of bergamot held over from last year at very high prices. An attempt was also made to bring about the desired result by exaggerating the quantity bought, which was, after all, only twenty pipes. An amalgamation of the principal holders of old stock was next spoken of, with a view to purchasing the whole of this year's production, but nobody could be found in the end to embark in a scheme so dangerous and uncertain. There would be no reason to play for a fictitious value if a high price would come of itself.

Quicksilver has again advanced to a stiff figure. Present quotations are fourteen guineas per bottle, and for large quantity fifteen pounds is now demanded. Mercurials have, of course, followed this lead.

Iodine is held firmly, and an advance in price is anticipated. Quinine is 6*d.* lower, owing to the more abundant supply of bark from South America, but holders are very firm.

Assafœtida at recent sales realised an advance of from 10*s.* to 20*s.* per cwt. All specimens of foreign honey also commanded higher prices, home production being this year reduced almost to nothing. Jamaica sold at 41*s.* to 52*s.*; Cuba at 48*s.* to 56*s.*; Antigua at 50*s.*; Australian, 45*s.* to 62*s.* Some good Chilian was bought in at 54*s.* Two bales of slightly damaged jaborandi were bought in at 5*s.* 2,000 ozs. of muriate of cinchonine were bought in at 1*s.*, and 500 ozs. of Pelletier's quinine, being put up, were also bought in at 6*s.* 3*d.*; some of German make in tins was named at 5*s.* 9*d.* Saffron may probably be worth buying now, as it is quoted low, and it is impossible to depend very certainly on the next crop, in consequence of the unsettled condition of Spanish affairs. We note a fall in the value of oil of peppermint, both English and American. Quassia is receding from late high values. A very bad cod fishery is reported from Newfoundland, and high prices for the oil are looked for.

A large parcel of santonine in ounce bottles was sold at last drug sales at a price which seemed very favourable to the buyer, averaging 22*s.* per lb., the usual price to buy in bulk at first hand being 25*s.* It turns out, however, that this santonine had made a voyage to China, and its precipitous return seems to cast at least a halo of suspicion around it. The purchaser, we believe, is discontented with his bargain, but as he bought from sample there is probably no remedy for him except to make the best of the transaction in the usual course of trade; consequently, buyers should scrutinise their santonine rather closely for some little time to come.

There is very little alteration in oils. Olive is slightly stronger, and there are a good many reports as to the scarcity of supply; but these are not sufficiently supported. We do not expect any considerable advance this winter. Rape oil is dearer, and so is cocoanut, but linseed is likely to be cheaper.

Gum shellac is more abundant in supply than the demand can meet, and prices have given way.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mincing Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.

	1875.					1874.				
ACIDS—	s.	d.		s.	d.	s.	d.		s.	d.
Acetic ....per lb.	0	4	to	0	4½	0	4	to	0	0
Citric .... „	2	11	..	0	0	4	3½	..	4	4
Hydrochlor......per cwt.	5	0	..	7	0	4	0	..	7	0
Nitric ....per lb.	0	5	..	0	5½	0	5	..	0	5½
Oxalic .... „	0	5¼	..	0	0	0	7	..	0	7¼
Sulphuric ...... „	0	0¾	..	0	1	0	0¾	..	0	1
Tartaric crystal.. „	1	6¼	..	1	6½	1	7½	..	0	0
powdered „	1	6¼	..	1	6½	1	7½	..	0	0
Antimony ore ......per ton	260	0	..	300	0	0	0	..	0	0
crude .. per cwt.	37	0	..	0	0	0	0	..	0	0
star...... „	59	0	..	0	0	46	0	..	47	0
Arsenic, lump...... „	30	0	..	0	0	20	6	..	0	0
powder.... „	13	9	..	0	0	10	0	..	10	3
Brimstone, rough ...per ton	150	0	..	0	0	145	0	..	150	0
roll .. per cwt.	10	0	..	10	3	10	0	..	10	6
flour.... „	12	6	..	15	0	11	6	..	12	0
Iodine, dry ....per oz.	0	7	..	0	0	0	8½	..	0	0
Ivory Black, dry .. per cwt.	8	6	..	0	0	8	6	..	0	0
Magnesia, calcined..per lb.	1	6	..	0	0	1	6	..	0	0
Mercury ....per bottle	294	0	..	0	0	470	0	..	480	0
Minium, red ...... per cwt.	24	6	..	25	0	24	6	..	0	0
orange .. „	37	0	..	0	0	36	0	..	0	0
Precipitate, red . per lb.	5	6	..	0	0	7	0	..	0	0
white „	5	5	..	0	0	6	11	..	0	0
Prussian Blue .. „	0	0	..	0	0	0	0	..	0	0
SALTS—										
Alum ....per ton	147	6	..	155	0	165	0	..	175	0
powder...... „	165	0	..	167	6	185	0	..	0	0
Ammonia:										
Carbonate ...... per lb.	0	7	..	0	7¼	0	7	..	0	7¼
Hydrochlorate, crude, white .... per ton	640	0	..	680	0	640	0	..	0	0
British (*see* Sal Am.)										
Sulphate........ per ton	385	0	..	395	0	370	0	..	380	0
Argol, Cape ......per cwt.	85	0	..	94	0	90	6	..	98	0
Red........ „	70	0	..	80	0	76	0	..	86	0
Oporto, red. „	33	6	..	34	0	32	0	..	33	0
Sicily ...... „	60	0	..	62	6	53	6	..	58	6
Ashes (*see* Potash and Soda)										
Bleaching powd...per cwt.	8	0	..	8	3	10	3	..	10	6
Borax, crude...... „	40	0	..	60	0	45	0	..	70	0
British refnd. „	53	0	..	0	0	68	0	..	0	0
Calomel ....per lb.	5	0	..	0	0	6	6	..	0	0
Copper:										
Sulphate ....per cwt.	26	0	..	0	0	26	0	..	28	0
Copperas, green..per ton	65	0	..	70	0	65	0	..	70	0
Corrosive Sublimate p. lb.	4	4	..	0	0	5	8	..	0	0
Cr. Tartar, French, p. cwt.	112	0	..	0	0	120	0	..	122	0
brown „	95	0	..	98	0	95	0	..	105	0
Epsom Salts ....per cwt.	6	6	..	0	0	5	6	..	6	6
Glauber Salts .... „	5	6	..	6	6	6	6	..	7	0
Lime:										
Acetate, white, per cwt.	11	0	..	20	0	13	0	..	21	0
Magnesia: Carbonate „	42	6	..	45	0	42	6	..	45	0
Potash:										
Bichromate ....per lb.	0	5	..	0	0	0	6½	..	0	0
Carbonate:										
Potashes, Canada, 1st sort ......per cwt.	28	6	..	29	0	34	0	..	34	6
Pearlashes, Canada, 1st sort ......per cwt.	34	6	..	0	0	44	6	..	45	0
Chlorate ......per lb.	0	8¾	..	0	9	0	11	..	0	0
Prussiate .... „	1	0¼	..	0	0	1	2	..	0	0
red .... „	3	2	..	3	3	2	10	..	2	11
Tartrate (*see* Argol and Cream of Tartar)										
Potassium:										
Chloride......per cwt.	7	0	..	0	0	7	0	..	0	0
Iodide ....per lb.	9	0	..	0	0	10	0	..	0	0
Quinine:										
Sulphate, British, in bottles ......per oz.	6	6	..	0	0	8	0	..	0	0
Sulphate, French „	6	6	..	0	0	7	6	..	0	0
Sal Acetos ......per lb.	0	8½	..	0	0	0	10	..	0	0
Sal Ammoniac, Brit. cwt.	44	0	..	45	0	44	0	..	45	0
Saltpetre:										
Bengal, 6 per cent. or under ......per cwt.	19	3	..	19	9	21	0	..	21	6
Bengal, over 6 per cent. per cwt.	18	0	..	19	0	19	0	..	20	6
British. refined „	22	6	..	24	6	25	6	..	26	0
Soda: Bicarbonate, p.cwt.	12	0	..	0	0	15	6	..	0	0
Carbonate:										
Soda Ash ..per deg.	0	2⅛	..	0	0	0	2⅛	..	0	0
Soda Crystals per ton	90	0	..	0	0	100	0	..	102	6
Hyposulphite, per cwt.	0	0	..	0	0	0	0	..	0	0
Nitrate ......per cwt.	11	9	..	12	0	12	0	..	0	0
Sugar of Lead, White cwt.	43	0	..	0	0	45	0	..	46	0
Sugar of Lead, Brown, cwt.	32	0	..	0	0	38	6	..	39	0
Sulphur (*see* Brimstone)										

	1875.					1874.				
	s.	d.		s.	d.	s.	d.		s.	d.
Verdigris .... per lb.	1	1	to	1	5	1	1	to	1	5
Vermilion, English „	4	6	..	0	0	6	2	..	0	0
China „	5	6	..	0	0	5	6	..	5	7

DRUGS.

Aloes, Hepatic ....per cwt.	60	0	..	160	0	60	0	..	180	0
Socotrine .. „	60	0	..	200	0	102	6	..	240	0
Cape, good.. „	35	0	..	39	0	36	0	..	39	0
Inferior .... „	30	0	..	34	6	30	0	..	35	0
Barbadoes .. „	40	0	..	175	0	40	0	..	180	0
Ambergris, grey........oz.	40	0	..	60	0	0	0	..	0	0
BALSAM—										
Canada............per lb.	1	9	..	0	0	2	0	..	0	0
Capivi .... „	2	7	..	2	8	2	7½	..	2	8
Peru .... „	5	0	..	5	6	7	2	..	7	4
Tolu.............. „	5	0	..	0	0	3	10	..	4	1
BARKS—										
Canella alba......per cwt.	16	0	..	27	0	16	0	..	27	0
Cascarilla .... „	16	0	..	22	6	19	0	..	25	0
Peru, crown & grey per lb.	0	8	..	2	7	0	10	..	2	7
Calisaya, flat „	1	10	..	5	4	2	9	..	5	9
„ quill „	2	0	..	5	4	2	10	..	5	4
Carthagena „	1	0	..	2	3	0	8	..	2	0
E. I. .... „	1	0	..	4	6	0	7	..	4	0
Pitayo ...... „	0	4	..	1	9	0	4	..	2	0
Red .... „	1	6	..	4	9	1	3	..	3	10
Buchu Leaves........ „	0	1¼	..	1	1	0	2	..	1	0
Camphor, China ..per cwt.	70	0	..	0	0	77	6	..	0	0
Japan .. „	0	0	..	0	0	77	6	..	80	0
Refin. Eng. per lb.	1	1	..	0	0	1	2	..	0	0
Cantharides........ „	3	6	..	5	3	3	0	..	5	0
Chamomile Flowers p. cwt.	35	0	..	60	0	50	0	..	84	0
Castoreum ....per lb.	6	0	..	24	0	6	0	..	24	0
Dragon's Blood, lp. p. cwt.	130	0	..	200	0	95	0	..	220	0
FRUITS AND SEEDS (*see also* Seeds *and* Spices).										
Anise, China Star per cwt.	110	0	..	0	0	145	0	..	125	0
Spanish, &c. „	30	0	..	35	6	12	0	..	27	0
Beans, Tonquin....per lb.	1	0	..	3	4	3	0	..	3	4
Cardamoms, Malabar good .... „	4	0	..	5	3	4	11	..	5	6
inferior.... „	1	0	..	3	9	2	0	..	4	10
Madras.... „	2	6	..	3	6	2	9	..	3	10
Ceylon .... „	5	8	..	5	10	4	6	..	4	9
Cassia Fistula....per cwt.	12	6	..	15	0	14	0	..	16	0
Castor Seeds .... „	10	0	..	10	6	5	0	..	9	0
Cocculus Indicus „	13	6	..	16	0	14	0	..	17	0
Colocynth, apple ..per lb.	0	6	..	1	0	0	4	..	0	10
Croton Seeds ....per cwt.	36	0	..	38	0	42	0	..	44	0
Cubebs.......... „	25	0	..	26	0	22	6	..	23	6
Cummin .... „	20	0	..	27	0	16	0	..	20	0
Dividivi .... „	12	0	..	15	0	11	0	..	15	0
Fenugreek ...... „	12	0	..	16	0	8	0	..	16	0
Guinea Grains .. „	23	0	..	0	0	25	0	..	27	0
Juniper Berries „	10	0	..	11	6	9	0	..	10	6
Nux Vomica.. .. „	8	6	..	14	0	7	0	..	13	0
Tamarinds, East India „	20	0	..	25	0	7	0	..	16	0
West India „	9	6	..	16	0	10	0	..	18	0
Vanilla, large .... per lb.	54	0	..	57	0	80	0	..	95	0
inferior „	30	0	..	53	0	54	0	..	78	0
Wormseed per cwt.	0	0	..	0	0	0	0	..	0	0
Ginger, Preserved, per lb.	0	6	..	0	7	0	6	..	0	10
Honey, Chili .... per cwt.	37	0	..	53	0	35	0	..	46	0
Jamaica „	44	0	..	52	0	38	0	..	52	6
Australian „	45	0	..	62	0	38	0	..	48	0
Ipecacuanha .... per lb.	4	0	..	4	6	4	0	..	4	7
Isinglass, Brazil.. „	2	7	..	4	11	2	10	..	5	6
Tongue sort „	3	0	..	5	3	3	2	..	5	8
East India „	1	0	..	5	0	1	1	..	4	6
West India „	4	4	..	4	10	5	0	..	5	6
Russ. long staple	13	0	..	16	0	8	6	..	13	0
„ inferior	0	0	..	0	0	4	0	..	8	0
„ Simovia	3	0	..	4	0	3	3	..	5	0
Jalap, good...... „	0	7	..	0	8	0	8	..	0	9
infer. & stems „	0	6	..	0	6½	0	7	..	0	7½
Lemon Juice .... per degree	0	2	..	0	2¼	0	2¾	..	0	0
Lime Juice........per gall.	1	6	..	2	0	2	6	..	2	8
Liquorice, Spanish per cwt.	37	0	..	90	0	40	0	..	70	0
Liquorice Root „	16	0	..	30	0	11	0	..	16	0
Manna, flaky ......per lb.	4	6	..	6	0	2	6	..	3	0
small ...... „	1	6	..	1	9	1	2	..	1	5
Musk, Pod..........per oz.	15	0	..	42	0	20	0	..	45	0
Grain........ „	40	0	..	55	0	42	6	..	57	0
OILS (*see also separate list*)										
Almond, expressed per lb.	1	2	..	0	0	0	11	..	0	0
Castor, 1st pale.... „	0	4	..	0	4½	0	5	..	0	5¾
second .... „	0	3½	..	0	4	0	4¼	..	0	5
infer. & dark „	0	3	..	0	0	0	4	..	0	4¼
Cod Liver ...... per gall.	3	3	..	6	0	3	8	..	6	3
Croton .... per oz.	0	2½	..	0	0	0	3	..	0	4
Essential Oils:										
Almond ....per lb.	25	0	..	0	0	25	0	..	26	0
Anise-seed ...... „	10	6	..	0	0	9	0	..	0	0
Bay ....per cwt.	0	0	..	0	0	65	0	..	70	0
Bergamot ...... per lb.	10	0	..	25	0	10	0	..	25	0
Cajeput......per bottle	2	8	..	2	10	2	3	..	2	5
Caraway........per lb.	9	0	..	0	0	5	3	..	6	0
Cassia .... „	4	2	..	4	3	4	9	..	0	0
Cinnamon ......per oz.	1	0	..	5	6	0	8	..	7	9
Cinnamon-leaf .. „	0	2	..	0	3	0	2⅛	..	0	3
Citronelle ...... „	0	1½	..	0	1⅝	0	1⅞	..	0	0
Clove ....per lb.	10	6	..	0	0	9	6	..	0	0
Juniper .... „	1	10	..	0	0	1	3	..	2	4
Lavender ......per lb.	2	0	..	5	6	1	10	..	5	0
Lemon.......... „	7	0	..	11	0	7	0	..	10	0

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Essential Oils, *continued*:—	s. d.		s. d.	s. d.		s. d.
Lemongrass ....per oz.	0 2½	..	0 3	0 3¾	..	0 4
Neroli .... ,,	0 4	..	3 0	0 4	..	3 0
Nutmeg .... ,,	0 7	..	0 0	0 7	..	0 8
Orange..........per lb.	6 0	..	9 0	8 0	..	10 0
Otto of Roses....per oz.	13 0	..	25 0	15 0	..	22 0
Patchouli ...... ,,	2 0	..	3 6	2 9	..	4 0
Peppermint:						
American ....per lb.	17 6	..	18 0	20 6	..	21 6
English ...... ,,	32 0	..	34 0	29 0	..	32 0
Rosemary ...... ,,	1 4	..	1 10	1 4	..	1 10
Sassafras ...... ,,	2 3	..	2 6	2 0	..	3 0
Spearmint ...... ,,	12 0	..	19 0	6 0	..	18 0
Thyme.......... ,,	1 9	..	2 0	1 9	..	2 0
Mace, expressed ..per oz.	0 7½	..	0 10	0 3	..	0 3½
OPIUM, Turkey ......per lb.	29 0	..	30 0	35 0	..	37 0
inferior ...... ,,	12 6	..	19 0	14 0	..	29 0
QUASSIA (bitter wood) per ton	140 0	..	220 0	0 0	..	0 0
RHUBARB, China, good and fine ....per lb.	4 0	..	4 8	2 1	..	5 9
Good, mid. to ord. ,,	0 8	..	3 0	0 3	..	1 6
Dutch trimmed ,,	0 0	..	0 0	0 0	..	0 0
Russian .... ,,	0 0	..	0 0	0 0	..	0 0
ROOTS—Calumba..per cwt.	22 0	..	24 0	10 0	..	18 0
China .... ,,	19 0	..	24 0	18 0	..	20 0
Galangal.......... ,,	19 0	..	22 0	22 0	..	25 0
Gentian .... ,,	23 0	..	24 0	17 0	..	19 0
Hellebore .... ,,	30 0	..	33 0	30 0	..	33 0
Orris .... ,,	26 0	..	75 0	30 0	..	70 0
Pellitory.......... ,,	38 0	..	39 0	38 0	..	39 0
Pink..............per lb.	0 10	..	1 3	1 0	..	1 3
Rhatany.......... ,,	0 4	..	2 0	0 4	..	1 11
Seneka............ ,,	3 5	..	3 6	3 6	..	3 10
Snake .... ,,	0 9	..	1 0	1 0	..	1 9
SAFFRON, Spanish .. ,,	18 0	..	23 0	22 0	..	26 0
SALEP ....per cwt.	0 0	..	0 0	170 0	..	200 0
SARSAPARILLA, Lima per lb.	0 0	..	0 0	0 6	..	0 9
Para.............. ,,	0 0	..	0 0	1 0	..	1 3
Honduras .... ,,	1 5	..	2 0	1 4	..	1 7
Jamaica .... ,,	2 5	..	2 11	1 9	..	2 4
SASSAFRAS ....per cwt.	0 0	..	0 0	13 0	..	15 0
SCAMMONY, Virgin ..per lb.	25 0	..	36 0	25 0	..	30 0
second & ordinary ,,	7 0	..	24 0	8 0	..	24 0
SENNA, Bombay .... ,,	0 1	..	0 4	0 1	..	0 5
Tinnivelly .... ,,	0 1½	..	0 10	0 1½	..	1 0
Alexandria........ ,,	0 7	..	2 6	0 3½	..	1 5
SPERMACETI, refined ,,	1 4	..	0 0	1 3	..	1 4
American .... ,,	1 2	..	0 0	1 0	..	1 1
SQUILLS............ ,,	0 3½	..	0 5	0 1½	..	0 3
GUMS.	£ s.		£ s.	£ s.		£ s.
AMMONIACI drop .. per cwt.	2 5	..	2 12/6	4 15	..	6 5
lump.. ,,	1 6	..	1 10	3 10	..	4 10
ANIMI, fine washed ,,	11 15	..	13 0	12 0	..	13 10
bold scraped ,,	10 5	..	11 10	10 0	..	11 15
sorts ...... ,,	5 0	..	9 17/6	6 0	..	9 10
dark ...... ,,	4 10	..	7 0	5 0	..	5 5
ARABIC, E.I., fine pale picked .. ,,	3 5	..	3 16	2 18	..	3 10
srts.,md.tofin. ,,	1 13	..	3 2/6	1 17	..	2 6
garblings .. ,,	0 19	..	1 15	0 19	..	1 10
TURKEY, pick.gd.to fin. ,,	6 0	..	9 0	7 0	..	11 0
second & inf. ,,	2 10	..	5 10	3 0	..	6 15
in sorts .. ,,	1 10	..	2 15	1 13	..	2 15
Gedda .... ,,	1 1	..	1 4	1 0	..	1 10
BARBARY, white .. ,,	1 10	..	1 15	1 5	..	2 2
brown .. ,,	1 5	..	1 8	1 5	..	1 12
AUSTRALIAN...... ,,	1 14	..	2 6	1 15	..	2 10
ASSAFŒTIDA, cm. to fin ,,	1 2	..	2 3	0 18	..	2 9
BENJAMIN, 1st & 2nd ,,	10 0	..	28 0	12 0	..	27 0
Sumatra 1st & 2nd ,,	7 10	..	12 0	7 10	..	12 0
3rd	3 10	..	5 10	3 5	..	4 5
COPAL, Angola red ,,	5 10	..	6 10	5 10	..	5 15
Benguela ,,	4 0	..	5 0	3 10	..	3 12/6
	s. d.		s. d.	s. d.		s. d.
Sierra Lcoue, per lb.	0 7¼	..	1 0	0 4½	..	0 10½
Manilla....per cwt.	27 0	..	34 0	12 0	..	21 0
DAMMAR, pale .... ,,	58 0	..	61 0	45 0	..	50 0
Singapore .... ,,	57 0	..	60 0	45 0	..	50 0
EUPHORBIUM .... ,,	12 0	..	20 0	11 0	..	15 0
GALBANUM .... per lb.	1 0	..	1 6	1 6	..	2 0
GAMBOGE, pckd. pipe per cwt.	180 0	..	235 0	180 0	..	280 0
GUAIACUM ....per lb.	0 6	..	2 0	0 8	..	2 7
KINO..............per cwt.	50 0	..	80 0	60 0	..	90 0
KOWRIE, rough .. ,,	36 0	..	50 0	27 0	..	40 0
scraped sorts ,,	51 0	..	70 0	41 0	..	53 0
MASTIC, picked ....per lb.	4 0	..	5 8	4 6	..	6 0
MYRRH, gd. & fine per cwt.	172 6	..	200 0	119 0	..	280 0
ord. to fair.... ,,	61 0	..	172 0	80 0	..	115 0
OLIBANUM, p. drop ,,	60 0	..	65 0	62 0	..	68 0
amber & ylw. ,,	48 0	..	50 0	55 0	..	60 0
garblings.... ,,	23 0	..	30 0	23 0	..	39 0
SENEGAL .... ,,	2 0	..	2 5	2 0	..	2 15
SANDARAC........ ,,	90 0	..	100 0	85 0	..	100 0
SHELLAC, Orange.. ,,	150 0	..	255 0	270 0	..	305 0
Liver .. ,,	125 0	..	180 0	250 0	..	265 0
THUS .... ,,	20 0	..	22 0	22 0	..	23 0
TRAGACANTH, leaf ,,	180 0	..	375 0	240 0	..	360 0
in sorts ,,	20 0	..	195 0	30 0	..	190 0
OILS.	£ s.		£ s.	£ s.		£ s.
SEAL, pale ....per tun	33 0	..	0 0	35 10	..	0 0
yellow to tinged ,,	30 0	..	32 0	32 0	..	34 10
brown ...... ,,	29 10	..	30 0	28 0	..	29 0
SPERM............ ,,	93 0	..	0 0	104 0	..	105 0
COD.............. ,,	41 10	..	0 0	39 10	..	0 0

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Oils, *continued*:—	£ s.		£ s.	£ s.		£ s.
WHALE, South Sea, pale, per tun	35 0	to	0 0	29 0	to	0 0
yellow ,,	32 0	..	34 0	28 0	..	29 0
brown ,,	29 0	..	30 0	25 0	..	26 0
East India, Fish ,,	23 10	..	24 0	24 10	..	0 0
OLIVE, Galipoli....per ton	0 0	..	0 0	45 0	..	0 0
Trieste...... ,,	47 0	..	0 0	43 0	..	0 0
Levant .... ,,	43 10	..	0 0	41 0	..	0 0
Mogador .... ,,	0 0	..	0 0	40 0	..	40 10
Spanish .... ,,	0 0	..	0 0	44 0	..	0 0
Sicily ...... ,,	0 0	..	0 0	42 10	..	43 0
COCOANUT, Cochin.. ,,	41 10	..	42 0	41 0	..	0 0
Ceylon ,,	39 0	..	39 10	34 15	..	35 10
Sydney ,,	32 0	..	38 10	30 0	..	35 0
GROUND NUT AND GINGELLY:						
Bombay	0 0	..	0 0	0 0	..	0 0
Madras	34 0	..	0 0	35 10	..	0 0
PALM, fine..............	40 0	..	0 0	36 0	..	0 0
LINSEED	24 10	..	0 0	27 0	..	0 0
RAPESEED, English, pale ..	34 15	..	35 0	31 10	..	0 0
brown	32 15	..	33 0	29 10	..	30 0
Foreign, pale ..	0 0	..	0 0	0 0	..	0 0
brown	0 0	..	0 0	0 0	..	0 0
COTTONSEED	30 15	..	31 15	27 15	..	0 0
LARD	59 0	..	60 0	62 0	..	0 0
TALLOW	27 10	..	45 0	20 0	..	30 0
TURPENTINE, American, cks.	24 0	..	0 0	26 6	..	26 9
French ,,	22 9	..	0 0	0 0	..	0 0
PETROLEUM, Crude	0 0	..	0 0	0 0	..	0 0
	s. d.		s. d.	s. d.		s. d.
refined, per gall.	0 9½	..	0 9⅝	0 9	..	0 9¼
Spirit ,,	0 10½	..	0 0	1 2	..	0 0
SEEDS.						
CANARY............per qr.	150 0	..	155 0	86 0	..	90 0
CARAWAY, English per cwt.	0 0	..	0 0	0 0	..	0 0
German, &c....	0 0	..	0 0	24 0	..	29 0
CORIANDER	10 0	..	18 0	8 0	..	18 0
HEMP..............per qr.	36 0	..	38 0	40 0	..	44 0
LINSEED, English per qr. ..	60 0	..	64 0	59 0	..	66 0
Black Sea & Azof	50 0	..	0 0	53 0	..	54 0
Calcutta ,,	48 3	..	0 0	56 6	..	0 0
Bombay ,,	49 0	..	0 0	57 0	..	0 0
St. Petrsbrg. ,,	45 0	..	47 0	54 0	..	55 0
Mustard, brown..per bshl.	0 0	..	0 0	0 0	..	0 0
white.. ,,	10 0	..	13 0	10 0	..	12 0
POPPY, East India, per qr.	49 0	..	50 0	56 0	..	57 0
SPICES.						
CASSIA LIGNEA ..per cwt.	57 0	..	70 0	60 0	..	75 0
Vera .... ,,	24 0	..	48 0	24 0	..	50 0
Buds .... ,,	95 0	..	105 0	120 0	..	122 6
CINNAMON, Ceylon:						
1st quality ......per lb.	2 5	..	4 1	2 8	..	4 7
2nd do. .... ,,	1 11	..	3 2	1 11	..	3 8
3rd do. .... ,,	1 8	..	2 7	1 6	..	3 0
Tellicherry ...... ,,	0 0	..	0 0	3 3	..	3 5
CLOVES, Penang .... ,,	2 2	..	2 3	2 0	..	2 1
Amboyna .... ,,	1 6	..	1 7	1 4	..	1 4½
Zanzibar.......... ,,	1 5	..	1 6	1 3½	..	1 4
GINGER, Jam., fine per cwt.	90 0	..	160 0	110 0	..	200 0
Ord. to good .... ,,	52 0	..	80 0	66 0	..	100 0
African .... ,,	46 0	..	47 0	58 0	..	0 0
Bengal............ ,,	40 0	..	42 0	51 0	..	57 0
Malabar .... ,,	35 0	..	44 0	51 0	..	52 0
Cochin .... ,,	58 0	..	120 0	80 0	..	112 0
PEPPER, Blk, Malabar, per lb.	0 5⅞	..	0 6½	0 7⅛	..	0 7¼
Singapore .... ,,	0 5¼	..	0 5½	0 7½	..	0 0
White Tellicherry ,,	0 11	..	1 5	1 4	..	1 10
Cayenne.......... ,,	3 0	..	3 7	1 6	..	2 2
MACE, 1st quality .. ,,	2 4	..	2 11	3 2	..	3 8
2nd and inferior .. ,,	1 1	..	2 3	2 0	..	3 1
NUTMEGS, 78 to 60 to lb.	3 5	..	4 2	3 6	..	4 7
90 to 80 ,,	2 11	..	3 5	3 4	..	3 6
132 to 95 ,,	2 7	..	2 10	2 11	..	3 3
PIMENTA	0 2½	..	0 3	0 3¼	..	0 3½
VARIOUS PRODUCTS.						
COCHINEAL—						
Honduras, black ..per lb.	1 10	..	2 6	1 11	..	2 10
,, silver .. ,,	1 7	..	1 10	2 0	..	2 4
,, pasty .. ,,	1 7	..	0 0	1 9	..	1 11
Mexican, black.... ,,	1 9	..	1 11	1 10	..	2 1
,, silver.... ,,	1 7	..	1 8	1 8	..	1 9
Teneriffe, black .. ,,	1 9	..	3 2	2 0	..	3 8
,, silver .. ,,	1 8	..	1 10	1 11	..	2 2
SOAP, Castile......per cwt.	26 0	..	33 0	33 0	..	34 0
SPONGE, Turk.fin.pkd pr lb.	12 0	..	16 0	12 0	..	16 0
Fair to good ,,	4 0	..	11 0	4 0	..	11 0
Ordinary .. ,,	1 0	..	3 6	1 0	..	3 6
Bahama .... ,,	0 6	..	3 0	0 6	..	3 6
TERRA JAPONICA—						
Gambier ......per cwt.	28 3	..	0 0	26 0	..	26 3
Free cubes .... ,,	39 0	..	42 0	40 0	..	42 0
Cutch .... ,,	25 6	..	27 0	22 6	..	23 0
WOOD, DYE, Bar ..per ton	£3 15	..	£4 5	£5 0	..	0 0
Brazil, Branch .... ,,	18 0	..	25 0	20 0	..	26 0
,, Logs ...... ,,	9 0	..	16 0	9 0	..	18 0
Cam.............. ,,	22 0	..	35 0	32 0	..	39 0
Fustic, Cuba ...... ,,	9 0	..	9 10	9 0	..	9 10
Jamaica .... ,,	6 10	..	7 10	7 0	..	8 0
LOGWOOD, Campeachy ,,	11 0	..	12 0	9 10	..	10 0
Honduras ...... ,,	7 10	..	8 10	6 10	..	6 15
St. Domingo .... ,,	7 10	..	8 0	5 2/6	..	5 10
Jamaica .... ,,	7 0	..	7 5	5 0	..	5 10
LIMA, first pile .... ,,	9 10	..	11 0	11 10	..	12 0
RED SANDERS .... ,,	7 0	..	0 0	6 10	..	6 15

NOTES AND QUERIES

Correspondents will please observe that the Editor cannot undertake to send private replies to the class of queries which are answered in this page. He will be much obliged if readers will communicate items for this department as well as draw from it. All communications should give (in confidence) the name and address of the writer, though any *nom de plume* may be adopted. No query can be attended to in the current month which reaches this office after the 10th.

An error occurred in our notice of Professor Bentley's Botany and Materia Medica Course at Bloomsbury Square in our Educational Information last month. The correct announcement of that course was given in the advertisement of the School of Pharmacy in the same number. Our compiler was unfortunately supplied with an old prospectus, and this oversight escaped notice.

C.—Artificial gems are made by chemically colouring a specially manufactured hard glass. The formula for the glass is thus given by Elsner:—

45·7 grms. of pure quartz,
22·8 grms. of pure dry carbonate of soda,
7·6 grms. of borax,
3·4 grms. of nitre, and
11·8 grms. of minium.

These substances must be perfectly fused in a Hessian crucible. For sapphires add to this mass 0·106 grm. carbonate of cobalt; for emeralds, 0·53 grm. oxide of iron; for amethysts, 0·265 grm. of carbonate of manganese; for topaz, 1·59 grm. oxide of uranium.

An Inquirer writes, "Can any of your readers inform me how concentrated waters are made, and give me a formula for Liq. Copaibæ c. Buchu et Cubebæ? If so, he will much oblige."

Aseptin.—Mr. J. C. Storey (Hull) writes, in answer to *A.* in September issue:—

"Aseptin is a Swedish patent, and (I can only speak from memory) is, I believe, boracic acid dissolved in clove water distilled from the flowers. Sufficient boracic acid is used to make a saturated solution."

White Enamel.—We have been asked sometimes for a formula for the brilliant white satin enamel applied sometimes to French cards and *papier de luxe.* We met with the following recently in a foreign journal:—"For white and for all pale and delicate shades take 24 parts by weight of paraffin and melt it; add thereto 100 parts of pure kaolin (china clay), very dry and reduced to a fine powder. Before mixing with the paraffin the kaolin must be heated to fusing point. Let the mixture cool, and it will form a homogeneous mass which is to be reduced to powder and worked into a paste on a paint mill with warm water. This is the enamel ready for application. It can be tinted according to fancy."

S.F.—Curry Powder.—We had the following recipe from a native Indian, and we believe it to yield a fine product. The powders must be fresh and of the best quality.

Coriander, fresh seed, roasted but not burnt, and
  finely powdered, 2 lbs.
Turmeric, fresh root, ditto, ditto, ¾ lb.
Fœnugreek, fresh seed, ditto, ditto, 8 ozs.
Mustard seed, ditto, ditto, 8 ozs.
Cummin seed, ditto, ditto, ¾ lb.

To this add cayenne pepper according to taste. Preferable, however, is the powdered Indian chilli pod, a much larger species than that sold in our shops, and not nearly so hot.

Lime in the Eye.—A correspondent of the *American Druggists' Circular* notes a method of treatment for the above accident, the knowledge of which it is quite possible may be useful to other pharmaceutists. He says:—"A negro came to me in intense agony, some unslacked lime having got into his eye. That the lime must be neutralised at all hazards, I felt certain. I chose sulphuric acid. I put one drachm and a half of the diluted acid in a four-ounce graduate, filled it with water, and told him to wash his eye with the liquid. He did as he was told, and was relieved almost immediately. Then I made him rinse his eye with pure water, and after that I told him to anoint it with olive oil, and to continue the application for some time. To-day he is almost well, and can see with his eye again. In another similar case, no remedy was immediately applied, as a doctor had to be sent for from some little distance, and the negro lost his eye entirely."

X.—One formula for making razor paper (we do not know if it is the one you require) is to prepare an oxide of iron by precipitating a solution of ferri persulph. by sodæ carb. Wash the precipitate well, and leave it of a soft consistence; then spread it on sheets of paper.

Spoonfuls and Wineglasses.—Some discussion has recently occurred with respect to the capacity of teaspoons in the *Lancet, Pharmaceutical Journal,* and other publications. *Apropos* of this we may refer to a very elaborate series of experiments recorded in this journal in January, 1869, by Mr. M. J. Ellwood, then of Newcastle-on-Tyne, now of Leominster. Mr. Ellwood found that teaspoons of last century invariably contained 60 minims of fluid, but that their capacity had greatly increased since the invention of electro-silver. The contents of modern teaspoons varied from 80 to 120 minims, and in one case even reached 150 minims. Dessertspoons formerly measured 3 drachms; now they contain 3½ and 4 drachms. Tablespoons, which originally measured 4 drachms, average under the electro *régime* 6 drachms. Wineglasses he found to vary between 12 and 19 fluid drachms.

W. G.—Respecting *Trimethylamine,* or *Propylamine,* as it is more commonly known in medicine, we cannot do better than quote from Parrish's "Pharmacy." After describing its preparation (from herring-pickle) and its properties, he says:—"According to Dr. Awenarius, of St. Petersburg, it appears to be a true specific for rheumatic affections, the acute as well as the chronic. He administered it in mixture containing 24 drops to 6 ounces of mint water, sweetened with 2 drachms of sugar, and gave it in doses of a tablespoonful every two hours." Parrish further states that muriate of propylamine (or trimethylamine) is the condition in which it is generally used in medicine in the United States, and he gives this form for a "cordial":—

Muriate of Propylamine, 96 grains
Aniseed Water, 9 fluid ounces
Atwood's Alcohol, 3 fluid ounces
Simple Syrup, 4 fluid ounces
Saffron, sufficient

Dissolve the muriate in the aniseed water, add the alcohol and syrup, digest with the saffron, and filter till clear and bright.

The dose of the muriate is from 3 to 5 grains; therefore from 4 to 6 fluid drachms would be the dose of the above mixture.

You are probably aware that arnica is believed by many authorities to owe its efficacy to trimethylamine.

J. and S.—We think Dr. Aitkin's "Outlines of the Science and Practice of Medicine" (C. Griffin & Co.), price 12*s.* 6*d.*, will best answer your purpose. You will find it advertised in our last issue.

F. and C.—We assure you that the books you name are quite sufficient to prepare for the "Minor." The British Pharmacopœia should be thoroughly studied, and some dexterity in chemical manipulation, a good knowledge of tests and reactions must be attained. This can be done "without the aid of a master" if the "Attfield" be worked at systematically.

J. Beech, 273 Icknield Street West, Birmingham, wishes to know of a receipt for a winter drink, similar to lemonade for summer.

W. A. C.—Can any of your readers tell me the best adhesive material to use for labels to go on tins? Gum frequently shows through and stains a label.

Alchemist.—An imitation of gold may be made by fusing together with saltpetre, sal ammoniac, and powdered charcoal, 4 parts platinum, 2½ parts pure copper, 1 part pure zinc, 2 parts block tin, and 1½ parts pure lead. Another good recipe calls for 2 parts platinum, 1 part silver, and 3 parts copper.

Toilet.—This is a good formula for

Milk of Roses.

Almonds (blanched)	8 ounces
Rose water	1 quart
Alcohol at 75°	4 ounces
Oil of rose	1 drachm
White wax, spermaceti, oil-soap, each	½ ounce

Cut the soap into shavings; heat it in a vessel over a water bath; add to it 2 or 3 ounces of rose water. When melted, add the wax and spermaceti and melt slowly. Beat the almonds well in a mortar, allowing the rose water to trickle into the mass by degrees. When the emulsion of almonds is finished, strain it through bleached muslin. The saponaceous mixture is then poured into the mortar, and is carefully blended with the emulsion. As the last of the soap mixture is added, the spirit in which the otto of roses has been previously dissolved is gradually poured in. When the whole is well mixed it is strained.

We believe this department of our journal might become most valuable if we could gather into it the intelligence of the trade generally. We feel very grateful to those gentlemen who do send us an item for it occasionally, but we think others might help us more liberally if they would give a little rein to the kind wishes which we know they entertain towards us. We shall be most happy to give another page or two to this department if a sufficiency of sensible material arrives. As it is we always finish this page with a painful consciousness of its defectiveness, and we often think that an apology is due to many readers for the frequent repetition of well-worn and generally well-known information, which, however, it seems essential that we should continually reproduce.